DOCUMENT RESUME

ED 080 812 CE 000 025

TITLE	Apprenticeship Training in New Jersey.
INSTITUTION	Fairleigh Dickinson Univ., Rutherford, N.J.
SPONS AGENCY	New Jersey State Dept. of Education, Trenton.; New Jersey State Dept. of Labor and Industry, Trenton.
PUB DATE	Jun 73
NOTE	102p.
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	*Apprenticeships; Labor Economics; *Labor Education; Labor Market; Minority Groups; On the Job Training; Sex Differences; Skilled Workers; State Surveys; *Trade and Industrial Education; Veterans; Vocational Education
IDENTIFIERS	*New Jersey

ABSTRACT

Apprenticeship is described from its earliest beginnings to the present, emphasizing relationships to unions, employers, and government. Apprenticeship training in New Jersey is treated separately, covering administration (statutory authority, historical foundations, systems of county coordinators, federal ties, and funding) and current trends (shown through comparison with other states, changes in minority participation, and economic factors). A survey of apprentices and apprenticeship programs in New Jersey was made through self-administered questionnaires and indepth interviews. Respondents were characterized by race, sex, age, union membership, veteran status, education, and career objectives. Apprenticeship programs were also analyzed. It was found that "conceptually, apprenticeship...combines the best features of existing manpower training programs including theoretical knowledge coupled with practical skills, a builtin paying job, a future, and the status of a skilled artisan, with better than average economic security." In spite of these advantages, apprenticeship programs in New Jersey and nationally are poorly financed, understaffed, and underutilized. Eleven recommendations for improving the situation are made. Twenty-five tables in the appendixes present the data and a 21-item selected bibliography is included. (MS)

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APPRENTICESHIP TRAINING

in New Jersey

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JUNE, 1973

A Research Study Conducted at
Fairleigh Dickinson University for the
New Jersey Department of Education
and Department of Labor and Industry

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Fairleigh Dickinson University for the
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CHARLES R. KELLEY, *DIRECTOR*

June, 1973

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INTRODUCTION

This report on Apprenticeship Training in New Jersey has its roots in a study I directed for the State Board of Education in 1963 entitled *Vocational Education for New Jersey Today*. That report provided directions and guidelines for programmatic action available to New Jersey under the newly enacted federal legislation, The Vocational Education Act of 1963. What that report failed to provide, due to time and budget constraints, was an adequate investigation of apprenticeship training in the state. This present study, jointly sponsored and funded by the State Department of Labor and Industry and the State Department of Education, was initiated to fill that need. In their letter inviting ten distinguished leaders from industry and the trade unions to serve on the study's Advisory Committee, Commissioners Heymann and Marburger stated:

> The study will encompass an evaluation of the current Apprenticeship system in New Jersey, where New Jersey is in terms of union and non-union apprentices, minority group involvement, related instruction, programs approved for the training of veterans and the feasibility of the State Apprentice Council concept.
>
> The need for a study of this nature is clear when one realizes that New Jersey, one of the leading industrial States, is low in its nationwide potential in terms of registered apprentices. . . .

At their first meeting in April 1972, the Advisory Committee set the following objectives for the study:

1. Outline the developmental history of such training in New Jersey and its contribution to the present state of the art and comparing same with other programs in selected states.

2. Assemble data, from all available sources in the State, that will define the current dimensions of apprenticeship training programs in New Jersey, including their scope, content and requirements for admission and graduation.

3. Conduct an opinion survey among apprentices, journeyman, instructors, employers and others, relative to the values and limitations of existing apprenticeship training program and practices.

4. Ascertain future manpower needs in general and of the potential of

apprenticeship training programs to contribute to these projected needs.

5. Evaluate apprenticeship training generally and its practice in New Jersey, in particular, relative to its viability in our developing economy and suggesting changes which could improve its administration, content and relevancy.

Over the course of the study the Advisory Committee held five meetings, at the last of which, on May 22, 1973, the study as reported herein was accepted. Part I of the report deals with a historical overview of apprenticeship training. Part II focuses on the development of apprenticeship training in New Jersey from its inception down to the present. Part III records the data collected through extensive surveys, questionnaires and interviews of apprenticeship program sponsors, coordinators, instructors, journeymen and apprentices themselves. These data were hard to come by, and their arduous acquisition served to support an early conviction of the research staff that the study should be viewed as exploratory, illustrative and directional. The final part of the report, Part IV, presents the findings, conclusions and recommendations of the study.

The report was accepted by the Advisory Council as herein presented. There were no minority papers submitted but feelings at Advisory Committee meetings often ran deep on certain sensitive aspects of New Jersey's apprenticeship training efforts. Mr. Grant Tate of The International Brotherhood of Electrical Workers requested that his name be disassociated with the final report. Some held that the study lacks sufficient input from organized labor. To assure input from organized labor was the reason, I assumed, that Commissioner Heymann and Commissioner Marburger invited seven labor representatives – Messrs. Brienza, Ganey, Hollins, Rajoppi, Tate, Vega and Worley – to sit on the ten-man Advisory Committee. Further, the study surveyed 7,640 employers or sponsors with known or potential apprenticeship training programs. These included 1,940 programs listed as currently active by BAT; 4,500 members of the New Jersey Manufacturers Association; and 1200 union locals in the State. Of the 1200 locals surveyed, 24 responded indicating that 14 currently sponsored an apprenticeship program and 10 had never done so. Attempts by members of the research staff to secure more data by working through union representatives on the Advisory Committee were frustrated. The research staff concluded that our inquiry may have triggered union concern and fear over possible litigation.

We did, however, use everything available in the literature. Two historical studies still stand as classics in the field: James M. Motley's *Apprenticeship in American Trade Unions* (1907) and the writings of the late Senator, Paul H. Douglas. The more recent studies by Marshall and Biggs, *The Negro and Apprenticeship* (1967) and by Dunlop and Mills, *Manpower Development and Utilization in the Contract Construction Trades*, an unpublished manuscript prepared for the Manpower Administration of the U. S. Department of Labor, May 1972, were contributive. The Dunlop-Mills study was given particular attention because of Dunlop's long and intimate knowledge of the construction trades unions. Dunlop, currently Director of the Cost of Living Council and formerly Chairman of the Construction Industry Wage Stabilization Board, is recognized as one of the foremost authorities on unions and union practices in

construction. His unpublished manuscript of May, 1972 carries the latest statistics and other data on unions and apprenticeship in construction, which represents the heart of union participation in apprenticeship.

Beyond the surveys and the literature, input from organized labor came to us directly from the many governmental departments and agencies who have statutorily-established relationships with organized labor. The report is heavy with these data.

Some held that there was lack of information about apprenticeship programs in states more nearly comparable to New Jersey; such as, Massachusetts, Michigan and Pennsylvania. It should be carefully noted that the study used *all* apprenticeship statistics for *all* states, 1962-71 inclusive, with particular reference to new entrants, completions, cancellations, the number in training at the beginning and end of each year, and compared the number in training (averaged for the year) with the sum of the employment in manufacturing and construction in each state. All data were processed on a computer and were tested to see if New Jersey was significantly different from other states. The results showed that New Jersey was *not* significantly different from the rest of the nation. Stated another way, there was no significant difference between SAC and BAT states with reference to the above measures in apprenticeship training.

It must be noted that the type of study we have done for New Jersey has not been undertaken in any other state. In New York, the State commissioned a study about six years ago. It was done through interviews and questionnaires by Dr. F. F. Foltman of the New York State School of Labor and Industrial Relations at Cornell University. There is very little statistical or programmatic analysis of apprenticeship in New York State in this study.

The only other reports using state data have been articles and an unpublished study by Dr. George Strauss of the University of California. Because of Strauss' national reputation and because we knew he was making further studies of apprenticeship, we paid particular attention to California data and spent the better part of a week in California seeking reports from official and University sources. However, Strauss' study, begun more than six years ago, is not yet complete and relies only partially on California data. A draft of the Strauss study served as a reference document in our research. To our certain knowledge there are no other states currently engaged in studying apprenticeship training.

On the point of lack of information on apprenticeship programs in states "more nearly comparable to New Jersey; such as Massachusetts, Michigan, Pennsylvania, etc.," I would make the following comments:

1. the states mentioned are industrial like New Jersey but they sharply differ in the type or degree (automobile manufacturing in Michigan as compared to New Jersey) of industrial composition, so that apprenticeship *per se* reflects these variations and thereby challenges the easy assumption of interstate comparability;

2. as already stated, there are no studies of apprenticeship training of the states mentioned which could serve as the basis of comparison;

3. the data that are available from the states mentioned were very carefully treated in our computer analysis and are so recorded in our report of the study.

In almost every instance, the research study team encountered ready and friendly cooperation from all sources and persons whose assistance was sought. We acknowledge in particular the help given by Dr. Theodore S. Huang, Director of Libraries at Fairleigh Dickinson University and his many excellent assistants; Mr. Stuart Anderson, Librarian, New Jersey Department of Labor and Industry; Mr. R. W. Clottu, Assistant to the Chief, California Division of Apprenticeship Standards; Mr. Gilbert Cohen, Librarian, Dana Library, Rutgers, The State University and Mr. Edwin York, New Jersey Occupational Research and Development Resources Center. Special gratitude is due Mr. James Merritt of the Dana Library, Rutgers University, for his indefatigable efforts to obtain 1970 census data for the United States at a time when it was not yet generally available. Similarly, we are grateful for the efforts of Dr. Donald M. Scarry of the Division of Planning and Research, N.J. Department of Labor and Industry to provide occupational projections of employment in New Jersey. Because of circumstances beyond his control, Dr. Scarry was unable to provide the data.

Special recognition is due Mr. Stephen Poliacik, Assistant State Commissioner of Education for Vocational Education, New Jersey State Department of Education and Mr. Jerome R. Sehulster, Director, Training and Employment Services, New Jersey State Department of Labor and Industry, for their commitment to enhance life chances for New Jersey youth, expressed in this instance by their unwavering support of this study.

Lastly, we acknowledge the good humor and remarkable abilities of Mrs. Jane Gordon who typed countless drafts of this report.

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I. GENERAL OVERVIEW OF APPRENTICESHIP

1. ORIGINS OF APPRENTICESHIP

Systematic teaching of occupational skills, or vocational education, probably dates from the beginning of organized society. Although the scope and content and type of occupational training naturally varied according to place and time, training in the industrial arts was independent of the state of economic development and the form of social organization. Skills training was to be found in ancient societies as it is in contemporary ones(1)*.

Currently, apprenticeship may be defined as the acquisition of an occupation involving manual, mechanical, or technical skills, requiring at least two years (4000 hours) of on-the-job training (OJT), supplemented by an appropriate amount of related training in theoretical and practical knowledge (typically 144 hours), conducted in a classroom or by correspondence, carried out in accordance with a written agreement (indenture), voluntarily entered into between the apprentice and the training sponsor, and culminating in a certificate of completion as a journeyman. The training sponsorship is in the private economy and may be an employer, union, or joint union-management apprenticeship council. If the training is conducted under a governmentally approved program, it is described as an "official" program. If not, it is regarded as an unofficial training program(2).

The apprenticeship system with which we are familiar today originated in the associations, or guilds, of master craftsmen, which date from about the 12th Century. Masters were those skilled in the art or craft, and apprentices were those he could train. This was to ensure the quality of training as well as to regulate the number of craftsmen and masters. The methods of training were rigidly prescribed and typically written into a contract or indenture. The period of training was generally seven years, during which time the master furnished the apprentice with the necessities of life in lieu of wages. Upon completing his training, the apprentice either became a journeyman working for wages or a master with his own journeyman and apprentices(3).

In England, Tudor legislation, the Statute of Artificers of 1563, restated and modified the medieval terms of apprenticeship training and extended it into a nation-wide system of manpower development. It was, in fact, the first national manpower development legislation. It remained a key part of Britain's labor policy until the apprenticeship clauses were repealed by Parliament in 1814. Tudor policy-makers and "manpower specialists" also regarded appren-

*See footnotes, beginning on page 62.

ticeship as a partial solution to poverty which, by the early 17th century, had become a national problem. To meet this problem, Parliament enacted the Poor Law of 1601 which, until replaced by the Poor Law Amendment of 1834, empowered public authorities in England to apprentice the children of the poor from age 7 to age 24 for males, and age 21 to the date of marriage for females.

Pauper apprenticeship differed from voluntary apprenticeship in that it was compulsory, not voluntary; it had a longer term of service (perhaps, servitude would be a better word); it was far less effective in developing skilled labor; as a rule, the type of occupational training was not specified in the indenture; and the trainees were not accorded social status equal to voluntary apprentices.

The indenturing of paupers could be arranged by parents; by justices of the peace for orphans, neglected children, children of impoverished parents, and illegitimate children; by trustees or guardians of orphans and poor children; and by institutions to whom dependent children had been entrusted(4). As late as the last decades of the 19th century dependent children continued to be indentured in this manner in New Jersey(5). This is still possible under existing law (Chapter 9: 8-1, b and 9: 9-1, N. J. R. S.), which permits any orphan asylum, a benevolent or fraternal organization, operating a home for children surrendered to their care by parents, guardians or courts, to apprentice their wards.

When the English settlers came to America, they brought with them the apprenticeship system embodied in the Statute of Artificers and the Poor Law. However, the colonists modified the system and, soon, important differences arose between provisions of the Tudor Code and the practice of the colonies. In some colonies, New Jersey for example, the period of training was not always kept at 7 years. Very often, no definite period of apprenticeship was specified other than that the apprentices were indentured until becoming of age, 21 for males and 16 for females. Hence, the length of indenture was really dependent upon the age of entry(6).

Training for useless occupations was discouraged by colonial authorities for both the voluntary and compulsory apprentices. In addition, they expected the master to instill pride of workmanship and achievement in the craft and to develop the moral character of his trainees. The most significant change made by the colonists was the addition of basic education to apprenticeship training for both voluntary and compulsory trainees. By this addition, the colonists made apprenticeship training "the most fundamental educational institution of the period"(7). Thus, the colonial version of apprenticeship training not only broadened it, but, in a sense, made it a new institution.

Colonial America depended on apprenticeship training and immigration to supply most of its growing needs for skilled workmen. As a result, the social status, as well as the economic value of apprenticeship were high in early America. This is in marked contrast to the attitude ascribed to contemporary school counselors, by a recent study of apprenticeship training, who seem to be operating in the mistakened belief that training for the skilled trades leads to dead-end jobs and is, therefore, for drop-outs, delinquents, and others who do not have the qualifications for college(8)!

Toward the end of the 18th century, public control of apprenticeship training, together with other regulations of the labor market, broke down and generally withered under the cumulative impact of economic development, the War of Independence, successive inflation induced by this war and previous colonial wars, the sharpened clash of economic interests between employers and journeymen, and the spread of laissez-faire, both in fact and in theory. It is noteworthy that Adam Smith's *Wealth of Nations*, which attacked state control over the economy, including the labor market, was published in 1776.

2. UNIONS AND APPRENTICESHIP

Over the next century, the vacuum left by the withdrawal of public control over apprenticeship slowly came to be filled by the trade union. In effect, the trade union originated as a substitute for the centuries-old network of public, mercantilist regulations which had protected the traditional working and living standards of skilled workmen. Significantly, unions arose in the skilled occupations, or the trades, as they were called, because these were the occupations which were most threatened by the advent of the laissez-faire economy. The term trade union, in fact, meant an organization of workers skilled in an occupation, organized for the purpose of maintaining and improving the material living standards of the membership.

By the end of the 19th century, unions had established themselves as permanent institutions in the country. The trade unions, which founded the American Federation of Labor in 1886, were organized on the basis of craft, exclusive of jurisdiction. Industrially, the union movement, until the rise of the CIO in 1937, was centered in a few industries, notably building construction, railway transportation, printing, clothing manufacturing, and mining. Occupationally, it consisted predominately of skilled workers in the construction, metal and printing trades. These historical features of unionism explain, to a considerable extent, the contemporary system of apprenticeship and its occupational and industrial localization. It is precisely in those industries and occupations in which unions arose, particularly the building and metal and printing trades, which are also the strongholds of the apprenticeship system today. Indeed, apprenticeship is virtually synonymous with craft unionism(9).

From the beginning, the trade unions recognized the importance of controlling the supply of labor in order to improve their bargaining position with employers and to limit unemployment among its members. When control of apprenticeship is coupled with the closed shop, a union is in a position to regulate the present and, to some extent, the future supply of labor. From their inception, therefore, trade unions have followed restrictive policies to regulate apprenticeship training.

In contrast to the trade unions in construction, the industrial unions (CIO, AFL, and Independent) never gained the closed shop in the great mass-producing industries, nor the same measure of control over apprenticeship. Partly as a result of these historical factors, apprenticeship procedures differ markedly between the construction and manufacturing industries. The fundamental difference being that in construction the unions dominate apprenticeship training. In a unionized manufacturing company the conduct of apprenticeship training may be shared by management and the union with an agreement that

may require all apprenticeship openings to be posted and open to bidding by employees, based on seniority and rank, before management may select and hire outside apprentices.

Because of seniority, paradoxically, it might be easier for a minority person to secure an apprenticeship in the building trades than in manufacturing companies. Typically, minorities are low in seniority in factory employment, while seniority is not a factor at all in selecting apprentices for the construction trades.

The unions' interest in apprenticeship goes beyond the goal of restricting the supply of labor. Unions claim, and with a measure of validity, that apprenticeship is also a "mechanism for insuring the continual supply of skilled workmen in an orderly and systematic manner and a means of permitting individuals to develop their full potential(10)." However, unions themselves also recognize that, as a result of these somewhat competitive goals, "more workers are becoming journeymen today through extensive and prolonged experience, ad hoc schooling, etc. than those completing apprenticeship programs."

3. EMPLOYERS AND APPRENTICESHIP

Employers also have an important and obvious interest in developing skilled manpower; however, their policies toward conducting apprenticeship within their own plants depends on several factors. Alternative sources of supply, from immigration(12), was an important factor until the curtailment of immigration in 1922. Closely associated, is the domestic mobility of labor. Some employers depend on the training of skilled workers by other employers to obtain their supply of skilled workers. Also, technological innovations, which reduce employer dependence on skilled labor, continues to be a factor in employee policies toward apprenticeship. Where programs are subject to collective bargaining, or to rigid governmental standards, employers tend to be reluctant to initiate them, or to have them registered with governmental agencies.

In the 19th century, as today, technological improvements, particularly in manufacturing industries, reduced employers' dependence on skilled labor by breaking down the skill requirements of a job and by substituting techniques and equipment for the craftsmen; however, in industries like construction, which were less affected by innovation and technological change, the reliance on apprenticeship gravitated steadily into the hands of the craft unions. The truly remarkable impact of the new techniques and equipment, on the production process and the labor market, was witnessed and commented upon by English observers who came to this country in the 19th century to study American methods of production(13).

Just as the industrial histories of construction and manufacturing have left a continuing imprint on apprenticeship to this day, similarly the history of education in the 19th century also continues to affect apprenticeship and vocational education to the present time. As education became widely available to the general population, both public and parochial schools increasingly emphasized academic education and denigrated vocational education: "The schools tended to lose contact with industry; and apprenticeship to lose contact

with citizenship(14)."

General education, which had been tied closely to apprenticeship in colonial America to serve vocational goals was, in the 19th century, severed from this objective. New Jersey which was one of the states with a law governing apprenticeship at the turn of the century had no general education provision associated with apprenticeship training(15). At the same time, the shift toward general education was believed to be closely associated with the rapid and broad advances in technological innovation(16).

It is not surprising, therefore, that apprenticeship reached its nadir in American economic history during the 19th century(17). The parlous state of apprenticeship in New Jersey in the late 19th century is reflected in a report of the N. J. Bureau of Statistics of Labor and Industry in 1881 and 1887(18). By the end of the 19th century, a number of major manufacturing firms introduced apprenticeship training or, as they were then called, "corporation schools." This was in response to the developing specific and general needs for skilled workmen and supervisory personnel needed by the manufacturing companies. These schools differed significantly from apprenticeship. Their goal was rarely to teach the whole trade. There was no fixed period of training, no indenture, instruction was almost entirely outside any legal supervision and, in contrast to apprenticeship, workers of all ages, not just youth, were trained(19).

The curtailment of immigration by World War I, and then by legislation in 1922 would, it would seem, have stimulated employers to develop apprenticeship. The ratio of apprenticeships to employees in manufacturing actually dropped, from 1 to 87 in 1920, to 1 to 195 in 1930(20). While the onset of the Great Depression reduced employment between 1929 and 1930, it is unlikely that the beginnings of the depression alone could account for the shrinkage.

4. GOVERNMENT AND APPRENTICESHIP

The first effective government support of apprenticeship was taken by the state of Wisconsin in 1911, followed by Oregon in 1932. In 1917, Congress passed the National Vocational Education Act (Smith-Hughes Act), which, along with federal grants for training in agriculture, home economics, and teacher training, also provided funds for trade and industrial education. In part, passage of the Smith-Hughes Act was a result of Congressional awareness that the nation could not depend upon foreign sources of craftsmen since Europe was at war and, if America were to be drawn into the war, its need for skilled workmen would accelerate.

Under the Smith-Hughes Act, states were to adopt plans for trade and vocational education. New Jersey's first plan was approved in November, 1917(21). Eventually, this and subsequent legislation, stimulated the establishment of the present network of county vocational and technical high schools in New Jersey. While Smith-Hughes provided assistance to related instruction for apprentices, no national policy toward apprenticeship was adopted until 1934 when, under the National Industrial Recovery Act, the Secretary of Labor appointed the Federal Committee on Apprenticeship consisting of representatives of various governmental agencies. The committee's duties were to oversee the rules governing apprenticeship, included in the codes of competition adopted

under the NIRA Act of 1933. After the NIRA was declared unconstitutional in 1935, the FCA went into limbo, until revised in 1937 by the National Apprenticeship Act.

This Act, popularly known as the Fitzgerald Act, embodied basic federal policy toward apprenticeship. Its goals were general: to "promote the furtherance of labor standards of apprenticeship, to extend the application of such standards by encouraging the inclusion thereof in contracts of apprenticeship, to bring together employers and labor for the formulation of programs of apprenticeship."

The Fitzgerald Act aimed to stimulate apprenticeship training programs through the voluntary action of private parties in the labor market. There were no mandates to employers or unions to adopt apprenticeship. It was not until the 1960's that this policy was altered in order to promote equal opportunity, through affirmative action, and thus to increase the number of minority persons in apprenticeship programs.

The Fitzgerald Act created a national agency to administer and carry-out the goals of the law, the Apprentice-Training Service, now known as the Bureau of Apprenticeship and Training (BAT). The Federal Committee on Apprenticeship (FCA) was reorganized and enlarged to consist of five members each from labor and management, appointed by the Secretary of Labor for two year terms, and an ex-officio member from the Division of Vocational and Technical Education, U. S. Office of Education. The FCA provides guidance to the Secretary of Labor and BAT in the formulation of standards of apprenticeship(22).

BAT's mission under the Act has been to stimulate apprenticeship through the dissemination of information, to register training programs which have met the standards set by the FCA, and to issue Certificates of Completion of Apprenticeship. Registration of apprenticeship programs, that is acceptance and recording of programs, by BAT is not automatic. A federal district decision in 1967 ruled that a group of non-union employers could not compel the U. S. Department of Labor and the Bureau to register their apprenticeship program, because an approved program already existed in their area. Hence, judicial interpretation of the Fitzgerald Act's "voluntarism" now invests the BAT with considerable negative power in establishing apprenticeship training.

Under the Davis-Bacon Act of 1931, only apprentices in registered programs can work on government contracts. The combined effect of the Fitzgerald and Davis-Bacon Acts on companies seeking government construction contracts, when they employ non-registered apprentice help, is to deny them such contracts. The court rejected an employer's challenge to this requirement on the grounds that the law intended to protect the rights of workers not contractors. The effect on the employment of non-union workers was apparently not given any standing in this decision(24).

BAT carries out its responsibilities through offices and field staff in all fifty states. BAT itself, it must be emphasized, does not conduct training. Training in programs registered with BAT may be conducted by one or more employers or unions, or a joint committee consisting of an equal number of

representatives of labor and employers. BAT approval is evidenced by a certificate of registration. Most apprenticeship programs are administered by joint committees of management and labor. The joint committee may be national, state, or local. National Joint Apprenticeship Committees (JAC's) may sponsor one or more occupations in an industry. They are to be found, primarily, in the building and printing trades(25).

The Fitzgerald Act also encourages states to set up their own apprenticeship agencies, or State Apprenticeship Councils (SAC's). The purpose of this provision was to increase the number of apprenticeship programs by augmenting federal resources with state funds and initiative. There are no federal funds to support State Apprenticeship Councils. It also must be noted that the establishment of a SAC does not eliminate BAT's responsibilities, duties, and functions. BAT maintains regular liaison with state councils on all matters affecting apprenticeship and monitors their activities to ensure that state programs, especially with regard to equal opportunity and affirmative action, are consistent with federal standards.

On its face, it would seem that the addition of state to federal resources implies more and perhaps better apprenticeship programs. Such a conclusion does not take into account additional resources which the federal government might have contributed in the absence of a State Apprenticeship Council. It also oversimplifies the factors which govern the number and quality of apprenticeship programs.

In Part II of this report we shall review some data on this point. However, even at this time, it would be useful to note that a review of the state apprenticeship training program of the state of New York in the mid 1960's led the principal consultant to raise similar questions: "Why should a state like New York invest manpower and financial resources to support apprenticeship? Or to put it even in blunter terms, what would happen if the state were to withdraw completely its support of such training?(27)" And in answer to those queries, he concluded: "Many employers would not even notice that the program was dropped. Some money might be saved, but apprenticeship in one form or another would continue even if the state were to withdraw."

However, the same report did endorse an "active and aggressive leadership role for the state." While his initial judgment was severe and doubtless excessive, it is important because it challenges the preconception that an SAC automatically implies more and better apprenticeship programs.

In the same vein, a review of apprenticeship in Wisconsin made these observations about a state which was the first to support apprenticeship: "Thus, while apprenticeship in Wisconsin is not a spectacular success, neither is it completely moribund . . . It is clearly shown that Wisconsin's apprenticeship program is not as popular with employers, apprentices and would-be apprentices as it should be(28)."

Twenty-nine states and the District of Columbia, Puerto Rico, and the Virgin Islands have formed apprentice councils. New Jersey's position is an anomaly, as we shall see later. The procedure for establishing a State Council is, first, enabling state legislation. Under federal requirements, the state enabling act

must establish the agency within the State Department of Labor, or the state agency with jurisdiction over laws and regulations governing wages, hours and working conditions. The Council must consist of an equal number of representatives from labor and employer organizations, all with voting rights. A state official is designated to administer apprenticeship training. State programs must meet federal standards and must be limited to training in federally approved and designated apprenticeable occupations.

Once approved, the State Apprenticeship Council is empowered to promote and register apprenticeship programs and issue certificates of completion, paralleling the activities of the Bureau of Apprenticeship and Training. Since BAT retains its functions in that state, a program and an apprentice can be accredited by one or both agencies. This can lead to duplication, confusion, and differences in reports. Such variances led this report to utilize BAT figures throughout, except where specifically noted.

While the Fitzgerald Act is the landmark legislation in apprenticeship training, other federal laws enacted in the post-World War II era have contributed to and affected apprenticeship training. The Employment Act of 1946 assists apprenticeship because, to the extent that it promotes maximum employment in the economy, it also contributes to apprenticeship. Thus, a statistical examination of new apprenticeship registrants and average annual unemployment and employment in the economy from 1948 to 1965, determined that there is a statistically significant coefficient of correlation between the two variables: "Generally, periods of peak unemployment . . . are also periods in which the number of new apprentices ebb to their lowest level. Conversely . . . years in which the index of annual average unemployment declined . . . are also years in which the index of new apprentices registrants rose(29)."

Congress has assisted apprenticeship directly by increasing federal funds for related instruction in public schools under the George-Barden Act of 1946, and again, on a larger scale, under the Vocational Education Act of 1963. Enactment of the Manpower Development and Training Act of 1962 (MDTA), a keystone in governmental efforts to foster a more efficient and optional operation of the labor market, creates a paradoxical situation for apprenticeship. It fosters training programs which complement apprenticeship, like pre-apprenticeship training, as well as programs which compete with it. An important example of a competitive situation in New Jersey, is the program of the Newark Construction Trades Training Corporation (NCTTC). It is an effort to provide skill training for minorities in the construction trades, patterned on the standard apprenticeship program. Its program has brought NCTTC into conflict with apprenticeship trainee programs of various unions.

As a result of the competitive feature of some MDTA programs, unions "with a significant apprenticeship interest have . . . expressed that MDTA is trespassing on modes of training now carried on by private union-management programs, and that some MDTA programs can deteriorate into inferior substitutes for apprenticeship(30)." While the MDTA can be expected to bring changes in the methods of training workers, its relationship to apprenticeship will continue to be an area of potential conflict, as well as of assistance, for the forseeable future.

5. APPRENTICESHIP, MINORITIES AND THE LAW

In addition to legislative efforts to promote apprenticeship training, there have also been significant efforts to increase the participation of minorities – Blacks, Spanish surnamed peoples, American Indians and Asiatics – in apprenticeship training. Thus, the Civil Rights Act of 1964, Title VII, addressed itself, in part, to opening apprenticeship to minorities who have been discriminated against in the conduct of the training programs. Section 703 (d), of Title VII, declares that it is unlawful for any employer, labor organization, or joint labor-management committee controlling apprenticeship, to discriminate in the admission to, or employment in, any apprenticeship training program. The terminal step in compliance is an order or consent decree.

A leading example of the importance of Title VII, in opening apprenticeship opportunities, was a case involving the Plumbers Local 24 and a Northern New Jersey District Council of the Ironworkers and its affiliated local unions, a Joint Apprenticeship Committee (JAC) in the structural ironworker crafts, and employers(31). It ended in a consent decree, by both defendants, requiring their apprenticeship training program to provide both equal opportunity and affirmative action for minorities.

Under the conditions laid down by the consent decree, in the case of the ironworkers, for example, the JAC agreed to accept applications for apprenticeship at least once a year, for a period of thirty days; to accept completion of the 10th grade, instead of graduation from high school, as the education prerequisite; to select and indenture 75 minority persons annually, for 5 years, in the JAC's apprenticeship program, or to place some of those accepted in the Ironworkers-Employer training program, a program designed to upgrade skills but which is not a full-fledged apprenticeship program. The trainee program is designed to train persons who do not qualify for the Ironworker's apprenticeship training by reason of age, education, or other reasons.

It should be noted that the consent decree left undisturbed the JAC's power to select and indenture apprentices. The purpose of the decree was to make the JAC's procedures available to those in the local population who had hitherto been excluded because of racial discrimination.

Another legal attack on the problem of discrimination in apprenticeship began with the shift in BAT policy in 1964. BAT, from its inception in 1937 until the early 1960's, took little or no action to obtain entry into apprenticeship training for minority groups. BAT's position was that it lacked the power to intervene(32). However, beginning in 1964, the Secretary of Labor promulgated standards of equal opportunity in apprenticeship and training under Part 30 of Title 29, Code of Federal Regulations, for selection of apprentices under the Fitzgerald Act. These standards required that sponsors of apprenticeship training select applicants for admission based on their qualifications alone, using objective standards and all steps necessary be taken to eliminate any discrimination against applicants and apprentices. In addition, State Apprenticeship Councils were required to adopt standards conforming with the new regulations, in order to receive continuing federal recognition of state-registered training programs.

The results of the new apprenticeship regulations and some other steps taken, as one study commented, "have not been completely effective(33)." At most, the regulations had only an educational impact. On the one hand, it conditioned the administrators and sponsors of training programs to the notion that change was coming and that apprenticeship opportunities must be made available equally to all qualified persons. On the other hand, "civil rights leaders and government officials also have learned that getting more Negroes into apprenticeship programs is not simply a matter of lowering racial barriers. On numerous occasions, very few qualified Negro applicants have come forward in response to efforts to recruit Negro applicants for apprenticeship programs(34)."

Because equal opportunity failed as a program to increase minority apprenticeship training, the policy of affirmative action was revised and strengthened. Under revisions, effective April 8, 1971, a person training five or more apprentices is required to adopt a written plan of positive procedures to identify, recruit, train, and motivate present and potential minority group apprentices. Programs with fewer than 5 apprentices are exempt.

Compliance with Title 29 provides for the filing of complaints, either with BAT, or a review body set up by the program sponsor. Where there is no review body, or BAT has grounds for believing an impartial review would not be made, BAT may conduct the compliance review. Under the Newark Plan (a community-developed plan for increasing minority employment in the construction trades), the review body consists of representatives from community groups, contractors, and unions. The U. S. Department of Labor, through the Office of Federal Contract Compliance, monitors affirmative action plans. Sanction consists of deregistration of the program, or reference of the matter to the Attorney General, with recommendations for court action under Title VII of the Civil Rights Act of 1964. It has been estimated that these procedures may take up to three years or more to become effective. Under the Newark Plan, an owner or builder is expected to terminate or close-down a contractor not in compliance with a review.

State Apprenticeship Councils are encouraged to adopt and implement Title 29. States which had an equal opportunity plan were required to submit a new plan or forfeit recognition of its program by the U. S. Department of Labor. BAT has the authority to determine whether the State equal opportunity plan, or any apprenticeship program registered with the State Apprenticeship Council, is administered in accordance with Title 29. In New Jersey, the Division of Vocational Education of the State Department of Education, which acts as the counterpart to a State Apprenticeship Council, has adopted Title 29 as New Jersey's program for Equal Employment Opportunity in Apprenticeship and Training.

6. APPRENTICESHIP TRAINING IN OUR DEVELOPING ECONOMY

The postwar legislation in manpower training and civil rights and the Labor Department's Equal Opportunity and Affirmative Action regulations brought the labor market into the 1970's with a comprehensive array of programs to expand the training of skilled workers; however, apprenticeship training encounters many formidable problems, some arising from the changes in

the economy and technology, some from the administration of training programs, and others from the nature of the training itself.

a. Projected Demand for Skilled Labor

A major long term change in the economy, fostered by technological innovations and economic growth, has been the shift in the balance of non-farm employment from the Goods to the Service sector. This has had a major impact on the labor market and apprenticeship training. Within the Goods sector, we include the industries of mining, manufacturing, trasnsportation, communications, and public utilities. In the Service sector, we include the industries of wholesale and retail trade, finance, insurance, and real estate, services and government(35). Since there is both a group of industries titled "services" and a Service sector, the reader should note that our references will always be to the Service sector.

Beginning in the mid-1950's, the American economy passed a watershed in its history when it became the first in the world to employ more people in the Service sector than the Goods sector(36). In the 1960's, employment in the Service sector continued to outpace the number of jobs in the Goods sector. This trend is expected to continue through the 'seventies'. By 1980, it is expected that the Service sector will employ nearly twice as many workers as the Goods sector(37).

The occupational requirements of the Service sector differ significantly from the Goods sector. Service industries demand a far greater proportion of professional, technical, managerial, sales and clerical occupations than do Goods industries. On the other hand, the Goods sector relies extensively on manual occupations, skilled and unskilled. In short, while the Service sector requires large numbers and proportions of white collar occupations, the Goods sector, in contrast, requires a labor force consisting primarily of blue collar workers. Given the shift from the Goods to the Service economy, and the concentration of skilled occupations in the Goods sector, manpower specialists concerned with the future of apprenticeship training must ask, will the change lessen the need for skilled occupations?

Fundamental to the switch-over from a Goods to a Service economy, measured by employment, is the growth of productivity in the Goods sector, which permit a larger volume of output with a smaller work force. Owing in part to the greater efficiency of the Goods sector, the share of the national income in constant dollars, originating in each sector, has changed little since 1929(38). Put another way, implicit in the economy's ability to support more Service employment is a labor force of skill and efficiency in the Goods sector.

The paradox of the Service economy is that while it requires relatively fewer blue collar workers in general (Table I-1), a greater proportion of them must be skilled workers (Table I-2). As Table I-1 shows, white collar occupations increased their share of employment from 43 to 48 percent in the 1960-70 period and may continue to grow to over one-half the employment work force by 1980. Meanwhile blue collar occupations, which declined in relative importance 1960-70, are expected to decline even further, to about one-third of the employed by 1980. At the same time, service workers who are primarily attached to the Service sector and in which, it should be noted, there are many

apprenticeable trades, grew in importance during 1960-70, and are expected to grow further by 1980.

Table I-2 shows changes among skilled occupations within the blue collar group. As the Table indicates, gains appear to be associated with the degree of skill. The relative importance of skilled workers increased between 1960 and 1970, and is expected to continue to gain in importance by 1980. Semi-skilled occupations (operatives) increased as a proportion of all blue collar jobs, 1960-70, but are expected to decline (in relative terms) by 1980. Unskilled blue collar occupations increased least, 1960-70, and are expected to decline further between 1970 and 1980. In general, then, the importance of skilled workers, and therefore, of apprenticeship, can be expected to increase along with the growth of the Service economy.

If we examine some details of the employment and the projected employment of craftsmen (Table I-3), we find that of the 1,870,000 projected increase, 1970-80 (line 5), 865,000 will be in construction trades, 212,000 in the metal trades (including mechanics), 605,000 in mechanical and repair occupations, and the balance of 197,000 among transportation and public utilities craftsmen, printing trades, and other trades. Of the categories of craftsmen reported in Table I-3, those in construction are expected to grow more rapidly than all the other groups; so much so, that their share of the projected 1980 total will increase from 32 to 34 percent.

Taken together, Tables I-1, 2 and 3, would seem to indicate that the answer to the query, "Will the switch to the service economy lessen the demand for skilled craftsmen?", is no. In fact, the growth in demand for skilled craftsmen in occupations primarily associated with the Goods sector, is expected to exceed the growth of occupations (repairman) in Service associated industries (Table I-3). The tables also indicate that the demand for skills in the service industries is growing, and therefore, that apprenticeship ought to be expanded to include these skilled occupations.

The projections in Table I-3 pose two other key questions for apprenticeship. Do the projected figures reported actually represent the number of skilled persons that will be needed, and can apprenticeship meet the demand? We believe the projections in Table I-3 to be consistent with the conclusion that employment in skilled occupations in both the Goods and Service sectors is expected to increase, even though the projected data may not be the precise quantitative measures of the future demand of skilled labor.

b. Apprenticeship as a Source of Craftsmen

Given that the demand for craftsmen is expected to increase, how important will apprenticeship be in providing the additional journeymen?

Very little statistical data and analysis exist on the proportion of craftsmen who achieve journeymen status by means of apprenticeship. A U. S. Department of Labor projection of the major construction crafts required over the decade 1960-70, estimated that apprenticeship would supply no more than 36% of electricians and as few as 3% of the painters, paperhangers, and asbestos workers. Overall Department figures suggest that of the new major construction

craftsmen expected to be trained over the decade 1960-70, only 10% would be produced through apprenticeship(39).

The proportion of craftsmen who attain journeyman status by all methods of formal training, apprenticeship, vocational training, and training in the Armed Services, was estimated to range from 73% for electricians and 71% for sheet metal workers, to 11% for the excavating trades (Table I-4). The results are based on a survey made by the U. S. Department of Labor in April, 1963.

A study of the Tool and Die maker trade shows long-run changes in the importance of different methods of skill training. Apprenticeship which accounted for over one-fourth of all methods prior to 1930, dropped to 8% of the total between 1930 and 1939, largely due to the depression and the slow economic recovery. It remained less important, compared to other methods of formal training for tool and die makers, during the war years when the emphasis was on accelerated on-the-job training. Apprenticeship gained in importance during the post war decade, 1945-54, and remained at almost the same level, 16% of all methods in the last period covered by the study, 1955-66(40).

Although the data on the importance and effectiveness of apprenticeship to produce craftsmen are scanty, there has been an abundance of criticism of the system's ineffectiveness. Moreover, this criticism is long-standing. For example, in 1921, Paul Douglas referred to apprenticeship as in decay. A study of six building trades in 1926 concluded that in construction, apprenticeship was in a precarious state both in numbers and quality. Another, in 1931, writes of the breakdown of apprenticeship in building construction. Most recently, another concluded that "a substantial expansion of apprenticeship is not realistically likely(41)."

Over the past twenty years, the trend of apprentices in training (at the end of the year) shows a considerable increase (See Tables II-1, and II-2). At the end of 1971, there was over 115 thousand more apprentices in training than in 1952, a gain of almost 75%. Moreover, if the number of apprentices is compared to employment in construction and manufacturing, the industry groups in which most apprentices are training, the ratio or training rate also increased sharply, particularly since 1967. (See Table II-3).

In addition to a quantitative record of growth, the qualitative importance of apprenticeship may be even more significant than the registration figures would suggest. According to a recent analysis of apprenticeship in construction trades, "Apprenticeship appears to supply a core of key journeymen, foremen, supervisors, and even contractors in most trades. In this sense, apprenticeship may be viewed as being as much a management training mechanism in some trades as a means of training journeymen(42)."

The interdependence of the qualitative and quantitative aspects of apprenticeship is illustrated by considering the relationship of productivity to apprenticeship. To date, "widely accepted measures of productivity in the construction industry, are not yet available for a variety of conceptual and technical reasons(43)." Estimates available rate the efficiency of the construction industry rather low. For example, for 1929-1965, Fuchs estimates output per man in

contract construction increased at .7 percent per year, compared to 1.9 percent for the economy. In two subperiods, 1929-47 and 1956-65, he estimated that output per man actually declined(44). When this productivity record is viewed in conjunction with the cost-price record of the industry, together they suggest that unit labor costs may be a key factor accounting for the under-utilization of apprentices in construction. Collective bargaining agreements currently allow for more apprentices than the industry apparently employs. Perhaps, the low productivity record of the industry accounts for this.

c. Minority Participation

The historical record of Negro employment in the construction crafts shows several trends (Table I-5). First, by 1970 the proportion of Blacks among the bricklayers, cement finishers, roofers, and laborers exceeded their participation in the total civilian labor force. Second, several occupations remain predominantly white: Electricians, plumbers and pipe-fitters, iron workers, and sheet metal workers. Third, the historical trend of Negro participation in all construction trades for which data are available has been up, especially since the 1940's.

As for apprenticeship, a recent analysis of Blacks' employment in the construction trades concluded that the most dramatic improvements in racial balance in the building trades, have been achieved recently in the membership of apprenticeship programs(45). In 1966, non-whites comprised but 2.3 percent of registered apprentices. By early 1972, minority participation had risen to 9.8 percent of the total. In the construction crafts, the comparable figures were 7.2 and 10.8 percent(46). (See also Table II-7).

The number of minorities becoming craftsmen and foremen has increased. From 1958 to 1971 the number of minorities employed as craftsmen and foremen rose from 378,000 to 663,000, a gain of 75 percent. As a result, the proportion of minorities to the total number of craftsmen and foremen rose from 4.5 percent in 1958 to 6.5 percent in 1971(47).

We have already indicated that the demand for craftsmen is expected to increase; however, in the construction industry the cyclical and seasonal patterns and union labor market practices (putting aside any discriminating racial practices) can be expected to limit the increase in the supply of labor. Therefore, even in the best of circumstances, minority employment, together with general employment in construction, will be limited. This must be emphasized in order to avoid expectations which the labor market and the apprenticeship system can not fulfill.

II. APPRENTICESHIP IN NEW JERSEY

ADMINISTRATION

New Jersey's administration of apprenticeship training is unique among the states. Technically, it is neither a BAT state, that is a state in which only the U. S. Department of Labor, Bureau of Apprenticeship and Training (BAT) supervises apprenticeship, nor a state with a State Apprenticeship Council (SAC) which has that primary responsibility.

STATUTORY AUTHORITY

While New Jersey enacted state legislation in 1953 creating such a Council in the State Department of Labor and Industry(49), that law has never been implemented. Instead, the State Department of Education which, since 1946, has been acting as the sole state agency for apprenticeship training with the approval of the Governor, continues to function in that capacity.

The relationship of the Division of Vocational Education of the State Department of Education to the Bureau of Apprenticeship and Training is the second major feature of New Jersey's unique administration of apprenticeship. It should be noted that BAT, regardless of the existence of a SAC, has many supervisory, administrative and service directives under federal law. In 1959, in order to reduce overlapping and conflicting activities, BAT in New Jersey and the State Department of Education agreed upon joint approval of apprenticeship programs in the State with matching procedures and records in the two agencies and with coequal authority to issue certificates of completion of training.

HISTORICAL FOUNDATIONS

Aside from their uniqueness, the above differences are significant for present and future State policies vis-a-vis apprenticeship in New Jersey. First, there are the implications arising from the differences in the structure and personnel associated with an educational department, on the one hand, and a labor department, on the other. In a SAC state, there is, obviously, a Council and the Council sets policies, standards for apprenticeship agreements, and issues the regulations needed to implement the state's apprenticeship programs. Typically, a director, or division, carries out the mandates of the Council legislation. In New Jersey, these functions are carried out by the State Department of Education's Division of Vocational Education and its Director of Apprenticeship Training. As for personnel, the attitudes and philosophy of those in an education department would tend to differ from those in a labor department. Very likely, an education department will place more emphasis on

related instruction than a state apprenticeship council; conversely, the SAC may pay more attention to the on-the-job training.

Another important feature of New Jersey's administration of apprenticeship is the historical association of the Division of Vocational Education (DVE) of the State Department of Education and its predecessor agency, the Vocational Division of the Department of Public Instruction, with the related instruction component of apprenticeship. This historical association, at least a half century old, gives the DVE a significant record of experience with related training for apprenticeship training and probably was the reason why it was initially designed and successive administrations have accepted the DVE as the State's agency responsible for all aspects of apprenticeship trainig.

The first related instruction classes may have been given as early as 1917 in the Middlesex County Vocational School under the administration of local authority(50); however, it was not until 1923 that definite steps were taken on a state-wide basis to develop special classes for apprentices(51).

Even before the commencement of regular and systematic classes for related instruction for apprentices some fifty years ago, the State gave significant administrative recognition to industrial education and related instruction for apprentices. When the Office of the State Department of Instruction was abolished and replaced by a Commissioner of Education in 1911, the reorganization established four assistant commissioners, one of whom was made responsible for vocational education. In addition, the reorganization not only rejected a separate and, by implication, a demeaning approach toward industrial education, it also "placed vocational education on an equal administrative level with all other educational programs in New Jersey school system(52)." The first assistant Commissioner for Industrial Education, Mr. Lewis Carr, was appointed in January, 1913.

In that same year, New Jersey enacted the Vocational Education Act. This initiated and fostered the county vocational school system, the public school unit now responsible for most of the "line" administration of apprenticeship (through apprentice coordinators) and, also, most of the related instruction for apprentices in New Jersey. The Act of 1913 made provision for industrial education for the trades and crafts and authorized instruction in evening classes, which would include related instruction for apprentices.

The first county vocational school was established in Middlesex late in 1914 and opened its first classes nearly a year later(53). In 1934, the Bayonne Vocational School became the first technical high school(54). Currently, 17 of the States' 21 counties have vocational-technical high schools.

When Congress enacted the National Vocational Education Act in 1917 (the Smith-Hughes Act), the State's experience with its own vocational legislation enabled it to act quickly in submitting to the U. S. Office of Education the state plan required by the federal law to qualify for the funds offered by Smith-Hughes to Vocational Education, generally, and to apprenticeship, in particular.

New Jersey's plan, at least since 1947, makes the Assistant Commissioner

for Vocational Education and his supervisor for education in trades and industries responsible for the "supervision of apprenticeship training activities and the development of teaching materials and teaching methods through cooperation with the apprentice coordinators (of county vocational schools) (55)." Prior to 1947, this same Assistant Commissioner had the same responsibilities for apprenticeship although the previous plans did not detail them as did those beginning in 1947. The shift to a detailed accountability came as a result of the George-Barden Act of 1946. That Act provided legislative sanctions for vocational programs, such as related training for apprentices which had previously been developed and carried out under administrative agreement between state and federal agencies(56).

The Smith-Hughes Act was intended to stimulate trade instruction "supplemental to the daily employment" of those over 16 years of age in evening school. The State had made similar provision in its Vocational Education Act of 1913. Under the federal law, a minimum of 144 hours per year of related instruction was required for apprentices. Initially, state and federal legislation affecting related instruction had little impact in New Jersey.

However, beginning in 1922, when the state plan for vocational education could be approved for five years instead of one, New Jersey began to pay greater attention to the needs of apprentices. It was not "until 1923 that definite steps were taken, on a state-wide basis, to develop special classes for apprentices(57)."

Other contributing factors were, undoubtedly, the Congressional ban on unrestricted immigration in 1922, and the building boom of the 1920's, which focused attention on the need to develop craftsmen within the United States, and fostered the growth of building unions and apprentices. The available statistics for 1923-28, show that most of the apprentices, enrolled in evening related instruction classes, were in the building trades(58).

Generally, enrollment in related instruction for apprentices climbed rapidly from 1924 to 1928. By 1928, the number enrolled (3700) about equalled the total number of registered apprentices reported by the U. S. Bureau of Apprenticeship and Training (BAT) in New Jersey twenty-four years later (see Table II-1).

The onset of the Great Depression in 1929 shrivelled all apprenticeship programs. It also debilitated the Division of Vocational Education's efforts, begun in the 1920's, to put related instruction on a statewide basis. It was not until the mid-1930's that the statewide system was revised. The State's Vocational Plan for 1937-42 was the result of this revision. The same plan gave the apprentice coordinators in the County Vocational-Technical High Schools the authority to coordinate relations between the schools and industry(59).

Enactment of the Fitzgerald Act in 1937, which permitted states to organize state apprentice councils, did not bring any immediate legislative effort in New Jersey to shift administrative responsibilities for apprenticeship from the Vocational Division of the Department of Public Instruction to a State Apprenticeship Council. On the contrary, prior to and during World War II, the State authorized the Vocational Division to administer New Jersey's programs for Vocational Education for National Defense (VEND). This program, later

titled Vocational Training for War Production Workers, was financed by the federal government(60). Two types of training were involved, pre-employment and supplementary. The program made extensive use of vocational education facilites. In New Jersey "almost a quarter of a million workers were prepared for jobs(61)."

Because of the DVE's experience with vocational training during the war years and related instruction for apprentices in the pre-war period, it was assigned its present apprenticeship role under the State Vocational Plan for 1947-52. The plan was approved by the Governor in 1946 and by the U. S. Office of Education in 1947. Significantly the program of approval and registration operated under the title "New Jersey State Apprenticeship Training Program(62).

Another significant step which strengthened the Vocational Division's administration of apprenticeship training was the Governor's selection of the DVE, instead of the Department of Labor and Industry, as the approval agency for veterans apprenticeship training under the Servicemen's Readjustment Act of 1944.

The Veterans's Administration provided funds to the DVE to staff this program. The VA accepted only those veterans' apprenticeship programs approved by the Commissioner of Education. The DVE established a list of standards to be used in approving a veteran's apprenticeship training, a list consistent with standards still generally used in approving and registering apprenticeship programs(63).

The state-approved apprenticeable trades for veterans include additional trades over and above those accepted by the U. S. Apprentice Training Service (now BAT). For this reason, and because of the large number of veterans selecting apprenticeship training, attracted by subsistence payments in addition to apprentice scale wages, there was a temporary bulge in the number of registered apprentices. According to the records of the DVE, in 1948, there were 8,257 registered apprentices (BAT figures for that year were 3,777) and in 1949, 8,915 (BAT equivalent 4,152); but by 1953 the number had dropped to 3,953 (BAT, 3780). A parallel increase took place nationally in this period as indicated by BAT figures. After the Korean war, during 1956-58, similar but smaller gains in apprenticeship occurred nationally and in New Jersey.

Perhaps, the sharp decline in registered apprenticeship programs from 1948 to 1953 contributed to a reconsideration of the DVE's handling of apprenticeship because, in 1953, the State enacted legislation setting up a State Apprenticeship Council in the Department of Labor and Industry(64). The structure and duties of the proposed SAC were patterned after those in other states with apprenticeship councils. The legislation gave responsibility for related instruction to the State Department of Education and to local vocational education boards; however, the SAC was never funded or staffed. Instead, the Governor authorized the State Department of Education to continue to administer the State's apprenticeship program through its Division of Vocational Education.

At this point, the State Department of Education took several important

steps to strengthen its administration of apprenticeship. It prepared the first Apprentice Coordinator's Manual in 1955 and commissioned a number of new instructional manuals for its programs of related instruction. Further, in 1959, it entered into an agreement with BAT for joint approval procedures of apprenticeship programs, indentures and certificates of completion using the same forms and keeping each other informed of all actions taken by them.

Still another significant step taken by the State Department of Education to improve its administrative structure was to appoint in 1968 its first full-time Director of Apprenticeship Training. For field supervision of both aspects of apprenticeship programs, namely related instruction and on-the-job training, the Director is dependent mainly on the 22 county apprenticeship coordinators.

COUNTY APPRENTICE COORDINATORS

Most of those reported by the State Department of Education as being in "related instruction" are enrolled in courses given by the public school system. The keystone of that system is the county vocational-technical high school, and the key personnel in related instruction for apprentices are the county apprentice coordinators. As of 1968, over 350 instructors were teaching apprenticeship courses of study in New Jersey. The State Department of Education recognizes a variety of methods for providing related instruction, including classes separated by trades, classes of mixed trades and correspondence courses. It regards classes separated by trades as the best medium for instruction.

The goal of the State Department of Education is to provide at least 144 hours per year of quality and appropriate related instruction for each registered apprentice in the State. The content of the courses is reviewed by local advisory committees, and the county apprentice coordinators provide a continuing supervision over the selection and development of course materials. With the cooperation of the Curriculum Laboratory of DVE, apprentice coordinators update and introduce new course methods into related instruction programs.

The 22 County Apprentice Coordinators (Union County has 2 Coordinators) are not all equally active with their apprenticeship responsibilities. As Table II-12 indicates, the time spent by each in the Fall of 1971, varied from zero percent to 100 percent. In six counties, they devoted only 5.0 percent of their time, as against 100 percent in seven other counties. The State average was 58 percent. Together, they supervised 192 apprentice-training related instruction courses offered in the area vocational-technical schools in 19 of the 21 counties. Gloucester and Hunterdon Counties offered no courses. Some of the Coordinators doubled as evening school adult supervisors. No apparent relationship was discernable between the number of registered apprentices in any one county and the amount of time spent on apprentice supervision by the assigned coordinator in that county.

FEDERAL PARTICIPATION

At the federal level, BAT operates in New Jersey out of three offices with a staff of eight persons (a supervisor and seven field representatives). In recent years, a great deal of the staff's time and efforts have been expended on activities related to Title 29, Code of Federal Regulations, on equal opportunity and affirmative action by employers. Funds available under this Title have been used to establish three apprentice information centers (AIC's) operated by the

State Training and Employment Service, in Newark, Paterson, and Camden. The AIC's secure, maintain, and publicize information on apprenticeship openings.

In addition, the Federal government funds six outreach programs in New Jersey. These are designed to recruit and assist minority members of the population to cope better with apprenticeship admission tests and other eligibility requirements. The Workers Defense League operates such a program in Newark; the United Progress, Inc., (UPI) in Trenton; and the State Training and Employment Service in Camden, New Brunswick, Jersey City and Paterson. Each of the State programs is funded for $170,000 and has an annual placement goal of 188. The Workers Defense League in Newark is funded for $80,000, with a placement goal of 100. UPI receives $61,000 and has a placement goal of 35.

Among other federally-funded local projects designed to gain training and employment for minorities in the construction trades are the Newark Construction Trades Training Corporation (NCTTC) and the Minority Group Journeyman Referral Service, also in Newark. The referrals may become regular apprentices or receive training under special programs, such as that conducted by the Ironworker's, referred to in Part I. Trainees in the NCTTC program, while not technically apprentices, are expected to receive training similar to apprentice training.

Under the Newark affirmative action plan and under Court Order 162 Blacks and Spanish speaking apprentices and trainees have been hired at 16 construction sites in Newark. These include construction jobs at the Newark Airport, the Seton Hall Law School, Essex County College and the N. J. College of Medicine and Dentistry. According to a recent statement of the executive director of NCTTC, the ratio of minority employees at these sites was "approaching the affirmative action program's intermediate goal of having one minority trainee for every five journeymen at the job(65)."

FUNDING SUPPORT

One hears an oft-repeated claim that apprenticeship training programs cost the federal government about $40.00 yearly per capita. Considering the average cost of other federal-state manpower training and development programs, apprenticeship training would represent a phenomenal bargain – no matter how far the $40.00 might have been stretched from the actual cost figures.

The expenditures of funds for apprenticeship training programs is limited to the following items:

- Paying for related instruction courses out of shared federal-state vocational education funds. Instruction furnished mostly by local public school systems.
- Federal support of 6 outreach programs and 3 apprentice information centers.
- County funding of county apprentice coordinators.
- Federal monthly training assistance allowances to veteran apprentices. More than half of the respondents were veterans. Also federal payment for State staff handling veteran program.
- State responsibility for DVE Director of Apprenticeship Training, his secretary, and for other staff whose apprenticeship program responsibilities are only a part of broader areas of concern.

- Federal responsiblity for its local BAT office and staff.

Together, the above expenditures represent a very small fraction of the monies expended by the federal and state government on manpower development programs in New Jersey. In that connection, the State of New Jersey Comprehensive Manpower Plan for fiscal 1973(66) lists the following program expenditures in the State for fiscal year 1972:

U. S. Department of Labor, 15 programs		$113,510,853
U. S. Department of Health, Education & Welfare:		
Adult Basic Education	$ 1,440,000	
Vocational Education	11,141,513	
Vocational Rehabilitation	13,190,053	
Total		25,771,566
State of New Jersey:		
Vocational Education	$ 6,924,329	
Summer Youth Program	1,258,469	
Total		8,182,798
Grand Total		$147,465,217

These figures do not include expenditures for manpower training and development projects in the various New Jersey State and local programs of O. E. O. and Model Cities. The latter program alone was budgeted for $26,732,000.

It should be noted that some of the programs, like the JOBS program, had unexpended funds because of a lack of sufficient employer sponsors. Most of the programs referred to above do not begin to compare with apprenticeship training programs in the country.

TRENDS IN APPRENTICESHIP TRAINING

a. Comparative Data

The number of apprentices in training at the end of each year, in New Jersey, almost doubled from 1952 to 1971, as shown by BAT's statistics for the State (Table II-1). The peak year in registrations was 1967. New Jersey's share of total registrations in the United States also reached a peak (of 4 percent) in 1967. Between 1952 and 1957, New Jersey's share of total apprenticeship transactions in the United States rose from 2 to 3 percent. It has remained at 3 percent since then except for 1967 when it reached 4 percent of the total. Most of New Jersey's apprentices are to be found in a five-county area, including Essex, Hudson, Bergen, Union and Middlesex Counties. In January 1972, there were 4,342 registered apprentices in that area, or 58.7 percent of the state total.

In assessing the growth of apprenticeship in New Jersey, we have compared it with U. S. statistics and with a similar record in California, a SAC state. California is one of the leading states in its support of apprenticeship training, so that any comparisons with that state provide a high standard of measurement; however, the comparisons should be regarded as illustrative, rather than definitive, of inter-state relations. A complete analysis between states has yet to be done.

CHART 1. APPRENTICESHIP PROGRAM ACTIONS IN THE UNITED STATES FOR ALL TRADES, FOR THE CALENDAR YEARS 1967-1971

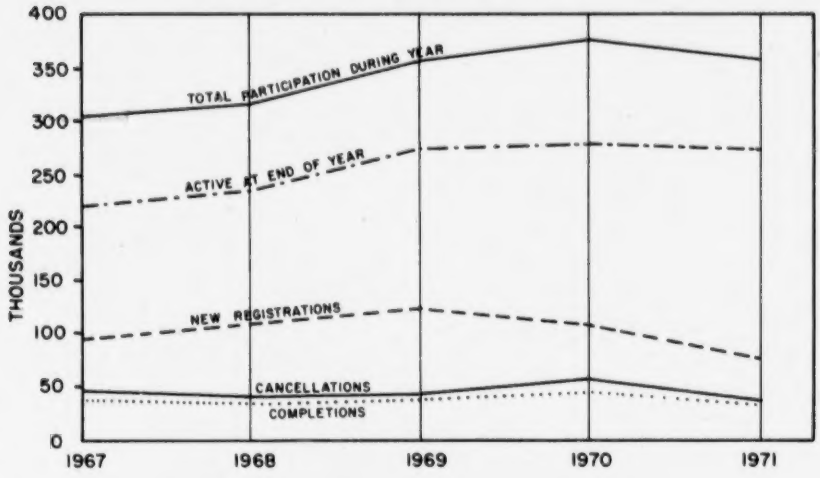
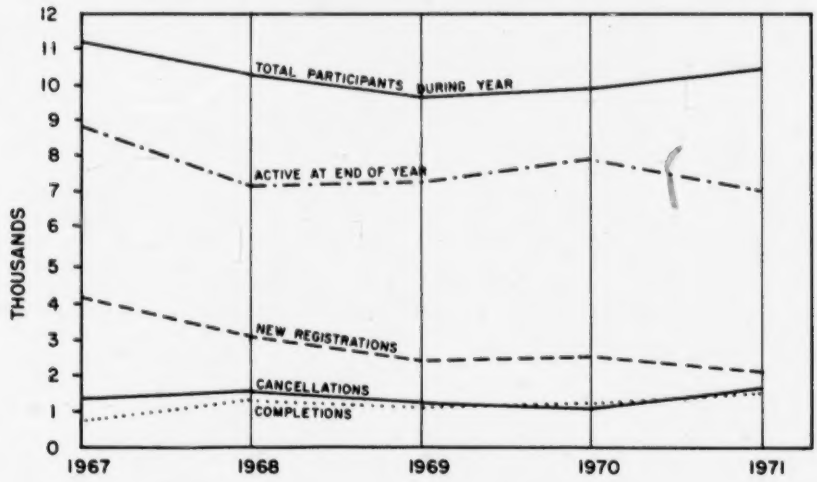


CHART 2. APPRENTICESHIP PROGRAM ACTIONS IN THE STATE OF NEW JERSEY, FOR ALL TRADES, FOR THE CALENDAR YEARS 1967-1971.



SOURCE: U.S. Department of Labor, Bureau of Apprenticeship and Training.

As shown in Table II-1, California's share of total apprenticeship transactions in the U.S. is far greater than New Jersey's owing, in great part, to the differences in the magnitude of employment in each state. California's share of total U.S. apprenticeships began at about 11 percent in 1952. This increased to 13 percent in 1960, and continued upward until 1965, when it began to edge downward, touching a low of 8 percent in 1969. The level of 10 percent (1971) is below California's share of total registrations in the country in 1952.

Nationally, between 1952 and 1971, the number of apprentices increased by over 115 thousand, a gain of 73 percent. During the same period, the number of apprentices in New Jersey grew by 3,500, a gain of over 90 percent; while in California, the number of apprentices increased less than 60 percent. The relative growth of apprenticeship in the United States, California and New Jersey are shown in Table II-2.

Significantly, apprenticeship registration in New Jersey grew most rapidly following the U. S. Labor Department's adoption of the equal opportunity program in 1964 and, later, its affirmative action program; however, the nation's growth in apprenticeship was even faster than New Jersey's. On the other hand, California's rate of growth, since 1964, has lagged behind both the U. S. and New Jersey.

In terms of "apprenticeship training rates" (the number of apprentices in training at the end of the year as a percentage of the sum of annual employment in construction and manufacturing – the two industries which generate most apprenticeships), New Jersey has doubled in the twenty years between 1952 and 1971, rising from .4 to .8 percent, while California's rate rose only from 1.5 to 1.8 percent (Table II-3). Although California's rate has, historically, been markedly higher than New Jersey's, the gap between the two states has narrowed considerably since 1952. New Jersey's apprenticeship training rate also shows gains on the national rate. The U. S. rate was double that of New Jersey's in 1952. By 1971, it was only just over 1.5 times as much.

Despite the impressive gains made in New Jersey, the State ranks low in the array of states ranked by the apprenticeship training rate. For this ranking, we averaged the training rate over the last five years (1967-71 inclusive) of data for all fifty states and the District of Columbia. Measured this way, New Jersey ranked 44th in the country(67). Ranked behind New Jersey were Georgia, Alabama, Arkansas, Mississippi, South Carolina (BAT states); Pennsylvania and New Hampshire (SAC states).

As in dicated, five of the seven states below New Jersey are BAT and two are SAC stat Of the BAT states, none are major industrial states, and all are in the South where industrialization has lagged behind the North and West. Moreover, the type of manufacturing employment in these Southern states does not include large numbers of occupations which are apprenticeable, especially in the metal trades. In addition, these states are low in unionization, compared to the nation, and unions in the metal and building trades initiate many apprenticeship programs. On the other hand, Pennsylvania, a major industrial and SAC state, ranks behind New Jersey in the rate of apprenticeship training. At the same time, it ranks 3rd in unionization compared to New Jersey which ranks 16th(68).

If we examine the top states by apprenticeship training rate, only two of the first twenty are major industrial states, California, a SAC state, ranked 19th, and Michigan, a BAT state, 20th. Of the other eighteen states, none are major industrial states.

If all states are grouped according to whether they are BAT or SAC states (Table A-5) with reference to the apprenticeship training rate, New Jersey ranks 16th among the 21 states classified as BAT states. The first five are Arkansas, North Carolina, Wyoming, South Dakota, and Oklahoma. The largest BAT state, Michigan, ranks sixth. Among the 29 SAC states and the District of Columbia, California ranked 14th. The first five were the District of Columbia, Nevada, Hawaii, New Mexico, and Montana.

If the means of the two groups are tested for statistical significance, there is no evidence that the two groups are significantly different at the 1 percent level of confidence (Table A-6). As for New Jersey, there is no evidence that it is not a typical state although its relative low training rate requires attention and explanation. The low apprenticeship rate in New Jersey has been noted annually in State Department of Education's reports on related instruction. According to these reports only about one-third as many apprentices as could be trained were in programs in most years(69).

If all states are ranked by average number of apprentices enrolled (1967-71), the states largest in employment generally ranked highest. New Jersey placed ninth. Only one state, Wisconsin, with smaller employment, ranked ahead of New Jersey. The five top ranking states are: California, New York, Michigan, Ohio, and Illinois. (Table A-7)

Another significant measure of the performance of apprenticeship training would be the program's completion rate. Since we do not have precise information on the exact length of time within which apprentices actually complete their training and become journeymen, following David Farber's procedure, we define the completion rate as the proportion of completions in a given year to the number of new registrations and reinstatements four years earlier(70). For example, in Table II-4, the completion rate of the "class of 1952" is the ratio of completions in one year, 1955, to the number of those who began training (registered or where reinstated) in 1952.

Applying this procedure to the U. S., New Jersey and California, we obtained the series of completion rates reported in Table II-4, for 1952-1968. In themselves, these rates do not show a discernable pattern. They do, however, show a high consistency when related to the level of unemployment in each of the years involved. This bears out David Farber's thesis that the apprentice completion rate varies directly with the level of unemployment.

Additional tests were made of the two groups of states, the BAT and SAC states, averaging the five years of apprenticeship data, 1967-71 inclusive(71). Quinquennial averages of new registrations, completions and cancellations were compared to the number of apprentices in training at the end of each year, also averaged over the five year period, to determine if there is an internal consistency among the states. Tests of the means of these ratios indicated no significant differences at the 1 percent levels of confidence (Table A-6).

The findings in this approach, like the ranking of states according to their apprenticeship training rate, shows no meaningful pattern and no correlations with whether a state is a BAT or a SAC state or whether they are highly industrialized or unionized. Other factors are obviously at work – factors that need to be ascertained through further research.

b. Trends in Minority Apprenticeships

In Part I we pointed out that New Jersey adopted Title 29 as its affirmative action program. Under that program under-utilization of minorities in apprenticeship programs exists when there are fewer minorities in a craft or crafts than could be reasonably expected, based on a list of five labor market factors. The detailed statistical data which would be needed to evaluate the effectiveness of New Jersey's apprenticeship programs are not available; however, statewide information and 1970 census data do provide some general insight into the participation of minorities in apprenticeship programs. It must be emphasized that the data in Table II-7 are statewide and therefore may not correspond to the labor market factors set forth by Title 29 (30.4, (e,1-5).

In New Jersey, the number of minority apprentices has increased from 495 in 1969 to 768 in 1972 (Table II-7). Gains were made in each year for which figures are available. As a result, the proportion of minority apprentices has steadily risen from 6.7 percent in 1968, to 10.5 percent of the total in 1972. The gains must also be viewed against the virtual absence of minorities in apprenticeship in New Jersey in 1960 when, according to the New Jersey Advisory Committee to the United States Commission on Civil Rights, there were only 14 nonwhites, or less than one-half of one percent of all registered apprentices(72).

New Jersey BAT data, as of July 1972, show that there were 1,962 registered apprenticeship programs in the State, with a total enrollment of 7,336 apprentices. Although only 142 (7.2%) of these programs were union sponsored, they accounted for 3,824 (52.1%) of the total registered apprentices. Over 90 percent of the 3,824 apprentices were in the building trades. Minority apprentices numbered 768 or 10.4% of all apprentices, of whom 621 were Negro, 136 Spanish-speaking and 11 American Indians. Although close to 50.0 percent of the minority apprentices were in the building trades, they represented only 10.5 percent of all the apprentices in those trades.

A breakdown within the building trades (Table II-6), however, shows a wide range of participation by minority apprentices. According to New Jersey BAT data for October, 1972, minority apprentices had a 51.8 percent (56 out of 108 apprentices) representation in the painting trade; 28.0 percent (67 out of 232) in the ironworkers; but only 3.5 percent (5 out of 143) in the steamfitters; 3.6 percent (26 out of 713) in the plumber-pipefitters; 8.0 percent (71 out of 844) in the electricians; and 3.2 percent (8 out of 250) in the sheet metal workers.

Even more revealing is a breakdown by geographical areas. For example, in January 1971, there were in Essex County, in the various building trades, 174 (20.9%) minority apprentices out of a total of 834 apprentices. In Union County, the count was 13 (3.6%) minority apprentices in a total of 357

apprentices; while in Morris County there was only 1 (0.5%) such apprentice among 193 apprentices.

Generally, minority apprentices tend to be concentrated first in the building trades (approximately 50.0%), then in the machine trades (about 25.0%), and the balance, although scattered, can be found in greatest numbers in the areas of dry cleaners, cook-chefs, laboratory technicians and repairmen. (See Table II-11).

Female apprentices, because of their low representation, are also a minority group. Of the 42 female apprentices registered in February 1972 with New Jersey BAT, 19 (45.2%) were working as lab technicians; 13 (30.9%) in the printing trades – printer, compositor and lithographer; 7 (16.6%) as cook-chefs; 2 as sign painters; and 1 as a sheet metal worker.

California data show that the state began the recent period with a far higher proportion of minority apprentices, 13.4 percent in 1967, and increased the percentage to almost 19 percent by 1971 (Table II-7). A major share of minorities in California are Mexican and other Spanish-speaking Americans. In 1967, 8.1 percent were from this ethnic category, 2.5 percent were blacks, and the balance of 2.8 percent were Orientals, American Indians, and others. In 1971, the corresponding percentages were 10.8 percent Spanish, 5.5 percent black and 2.6 percent other minorities.

The variation in the level and distribution of minority participation in apprenticeship training programs between New Jersey and California doubtless corresponds to differences in the two States' population and may account, in part, for the larger percentage of minorities in California's programs. Minority participation made fairly rapid gains between 1967 and 1969, but thereafter the rate was virtually unchanged. The slowdown led to the adoption of new regulations by the State of California to increase the employment of ethnic minority groups in apprenticeship programs(73). Although California has no quota or affirmative action plan to supplement Title 29, the objectives of its state legislation are the same, including full utilization of minorities. Its procedures, generally, appear to be patterned after those of the federal programs.

c. General Trends

Trends in the number of craftsmen in New Jersey from 1950 to 1970, developed from U. S. Census data shows gains in the decades 1950-60 and 1960-70 (Table II-8). While he growth in the number of craftsmen in New Jersey from 1950 to 1960 was at about the same rate as the nation, (11.7 and 11.8 percent respectively), it lagged behind the national gain over the last decade (Table II-9) when New Jersey's rate was 12.8 percent against the U. S. rate of 21.4 percent.

Moreover, in those occupations which registered a decline (machinists and mechanics repairmen, except auto) the national decline was well below New Jersey's. Also, while the national change among carpenters was up slightly, in New Jersey the number fell. New Jersey exceeded the national average only among auto mechanics and repairmen.

The slowdown in the overall gain in craftsmen in New Jersey may be attributable to rapid changes in the industrial and occupational mix which the State's economy and labor market have been undergoing, as well as a lag in employment growth in the manufacturing industries. The slower than average growth of craftsmen in New Jersey is also reflected in the below-average apprentice training rates nationally, which over the five year period 1967-71 has been .8 percent as against the national rate average of 1.2 percent.

The occupational changes among craftsmen, 1960-70, in Tables II-8 and II-9, are also reflected in apprenticeship registrations. For example, in 1967, the proportion of apprentices in metal trades in New Jersey was 41 percent; by 1971 it had dropped to less than 17 percent. Nationally, the decline from 1967 to 1971 was from 25 to 20 percent.

Employment changes in New Jersey's labor market appear to have slowed the growth in the number of craftsmen in the State, 1960-70. These changes show that employment in the Service sector has risen more rapidly than it has for the labor market as a whole over the last decade. Between 1960 and 1970, Service sector employment increased from 47.5 percent to 55.2 percent of non-farm employment, or at a rate of over 16 percent for New Jersey, compared to a national rate just in excess of 10 percent. Since the preponderance of craftsmen are generated by the Goods sector, rather than the Service sector of the labor market, this shift contributed significantly to the slower-than-(national)-average growth in the number of craftsmen in New Jersey, 1960-70.

Tables II-8 and II-9 indicate other significant changes linked to the rise of the Service economy in the 20 year period 1950-1970. In New Jersey, the number of mechanics and repairmen, most of whom are associated with Service industries, gained by over one-third compared to a 12 percent growth for construction craftsmen (including carpenters) and an 18 percent decline among metal craftsmen and machinists. Nationally, the number of mechanics and repairmen increased over 40 percent, contrasted to a 17 percent gain among construction workers (including carpenters) and a 1 percent rise among metal craftsmen and machinists.

Perhaps even more important is the extremely rapid growth of employment among foremen, from 1950 to 1960, and again from 1960 to 1970, in New Jersey and the nation. As the service economy grows, the number and importance of this management position will loom even larger, especially in the Goods sector. This finding is extremely important to apprenticeship because most foremen are likely to be former craftsmen, and apprenticeship remains the optimal method of developing craftsmen capable of becoming foremen.

While the shift in the economy kept the gain of the craftsmen in the State below the national average, in contrast the overall growth in employment was apparently not a factor. In fact, employment in New Jersey kept pace with the national average. Between 1950 and 1970, the average gain in non-farm employment was about 30 percent while in New Jersey it was 29 percent.

With respect to labor market changes, no projections of occupational trends in New Jersey using 1970 census data were available at this writing. Industrial projections for New Jersey show that construction employment, a

primary source of apprenticeship, is expected to gain by almost one-third between 1970 and 1980 (Table II-10). Manufacturing, the other major industry source of apprenticeship, is expected to grow by less than 7 percent, well below the expected State average of 20.5 percent for all industry. Indeed, the trends in the Goods and Service sectors employment, previously noted, will be further accentuated by the projected growth in employment in New Jersey. While employment in the Goods sector is expected to rise by under 12 percent, well below the State's overall average, the anticipated 1970-80 growth of employment in the Service sector is projected at three times the average rate. Such significant changes should have an important impact on apprenticeship training in New Jersey.

III. SURVEY OF APPRENTICES AND APPRENTICESHIP PROGRAMS IN NEW JERSEY

1. SURVEY PLAN

The development of the research design had to consider the acknowledged special interests and divergent positions held by those involved in the area of apprenticeship training – apprentices, employers, labor unions, educators, government, and community action groups – and how these elements mesh or clash within the present structure of apprenticeship nationally, in New Jersey, and among different states.

a. Sources of Data

(1) Review of the literature in the field.
(2) Official records of State and Federal agencies.
(3) Correspondence with state apprenticeship officials in other states.
(4) Visits to selected states, (California, Florida, Ohio, Wisconsin, New York, Massachusetts, and Washington, D. C.) and their apprenticeship agencies.
(5) Self-administered questionnaires to:
  (a) Apprentices – now in training; those graduated during the past two years; and those that dropped out in that period.
  (b) Employers and other sponsors of apprentice training programs – registered programs and potential non-registered programs (members of N. J. Manufacturers Association and union locals throughout New Jersey).
  (c) County apprentice coordinators
  (d) Instructors of related instruction courses
(6) Interviews. In-depth, unstructured of a representative sample of:
  (a) Apprentices, employers, county apprentice coordinators and instructors of related instruction courses.
  (b) Labor union and joint apprenticeship council (JAC) officials
  (c) High School counselors
  (d) Government officials, state and federal, having responsibility for, or interest in, apprenticeship training.
  (e) On-the-job foremen and journeymen instructors.
  (f) Community leaders involved in various aspects of apprenticeship training, including outreach programs.

b. Survey Samples

(1) Apprentices. Initially, it was planned to take a ten percent sample of all apprentices registered with BAT as currently active (8,070), plus all those that completed their training (3,300) or dropped out (2,852) during the previous two years – a total of 14,222 persons. Sampling was to be done randomly, stratified according to craft, geographical distribution, number of employees in firm, and race.

This plan was abandoned when the BAT record cards were found to include 2,210 duplicates, incorrect or no addresses, illegible entries and missing data. Given greater study time and staff, corrections could have been made from the individual BAT files. Instead, the apprentice sample was reduced to the remaining list of 12,012.

(2) Apprenticeship program sponsors. All the 1,940 current programs registered with BAT were included in the sample of sponsors. In addition, in order to seek out unregistered programs in the State, 4,500 members of the New Jersey Manufacturers Association and approximately 1,200 local unions were included in this sample, for a combined total of 7,640 sponsors, actual and potential.

(3) County apprentice coordinators. All 22 coordinators.

(4) Instructors of related instruction. General distribution.

(5) High school counselors – from 11 high schools, county vocational-technical schools in the four most populous counties – Bergen, Passaic, Essex and Hudson.

(6) Labor union officials, community leaders, government officials, others.

2. SURVEY PROCEDURE

a. Questionnaires

(1) Apprentice Questionnaires. In July of 1972, a draft questionnaire was mailed to 100 individuals, randomly selected from BAT lists of active, completed, and cancelled apprentices. On the basis of the 20% that were returned, some basic changes were made in the questionnaire. The modified questionnaire was mailed in mid-August to the entire population of 12,012 individuals obtained from the BAT "active," "completed," and "cancelled" files. Approximately 1,580 of this number were returned as undeliverable, because of "no forwarding address," "unknown at address" and "insufficient addresses." The total number of delivered questionnaires was, therefore, 10,432. By the cut-off date of September 15, 1972, the total number of respondents reached 1,596 or 15.3 percent of the delivered mailing. Many more responses arrived later but were not included because of the time limitations of the study. (2) Employer /Sponsor Questionnaires. A similar approach was used with reference to the questionnaires aimed at employers/sponsors. A draft questionnaire was mailed, early in June, to 50 employers randomly selected from BAT's file of active programs. The ten percent return indicated necessary changes in the questionnaire form and content. Before mailing the revised questionnaire, a brief, one-page preliminary survey was prepared and mailed to 7,640 employers/sponsors with known or potential apprenticeship training programs.

This list included the 1,940 programs listed as currently active by BAT; 4,500 members of the New Jersey Manufacturers Association; and approximately 1,200 union locals in the State. This preliminary questionnaire merely asked if the respondent was now, or had once sponsored an apprenticeship training program; the type of program; and the number of trainees in it.

By the September cut-off date, a total of 511 questionnaires were returned completed, or 6.7 percent of the total of 7,640 mailed out. The returns fell into the following categories:

	No. of Companies	No. of Unions and Union Associations	Total
Currently sponsoring programs	148	14	162
Formerly sponsored programs	64	0	64
Never had sponsored programs	275	10	285
Total	487	24	511

The revised questionnaire was sent, as a follow-up, to the 226 respondents who had acknowledged current or former programs. This more comprehensive survey requested data on size of company (number of employees), number of apprentices in training, selection criteria, recruitment and testing procedures, characteristics of apprentices (age, sex, race, education), and elements of their training programs.

Only 48 of the 226 (21%) responded. Fifteen of these stated that they had never sponsored an apprenticeship program, conflicting with their response in the preliminary survey.

(3) County Apprentice Coordinator Questionnaires. Responses to these questionnaires were received too late to be incorporated in this study.

(4) School Instructor Questionnaires. (Related Instruction). Distributed throughout State by County Apprentice Coordinators. Number distributed unknown. Response totaled 66.

b. Interviews

Research economics dictated the abandonment of some of the interview objectives, including county apprentice coordinators, instructors of related instruction, on-the-job foremen/journeymen instructors, employers and apprentices generally. Reluctance to participate, on the part of union officials contacted, also contributed to this situation. Their reticence extended to the sponsor questionnaires, as well.

An effort was made to interview apprentices who had dropped out of the training program during the previous 2 years. Difficulties in locating and in contacting them produced only 8 interviews.

Another attempt to interview applicants who had taken the necessary tests for various apprentice programs, but were not yet placed, produced only 2 interviews out of 75 contacted by mail.

In all other respects, unstructured interviews were held with a

great many individuals, in a variety of situations, as planned.

3. CHARACTERISTICS OF SURVEY SAMPLE OF APPRENTICES

While the overall response rate of 15 percent, by the cut-off date, was satisfactory, it was not fully representative of the racial distribution in the total number of registered, currently active, apprentices in the State.

a. Race and Sex

Minority apprentices as of July 1972, represented 10.4 percent of all active apprentices registered with New Jersey BAT. Of this number, 8.5 percent were black, with the rest mostly Spanish-speaking. The participation rate of females was 0.6 percent. The survey sample included only 5.5 minority respondents, 4.5 percent of whom were black. Similarly, the proportion of female respondents was under one percent.

PERCENTAGE DISTRIBUTION

RACE:	SURVEY SAMPLE	ALL BAT REGISTERED APPRENTICES
White	94.5	89.5
Black	4.5	8.5
Other	1.0	2.0
SEX:		
Male	99.1	99.4
Female	0.9	0.6

The skewed results could be attributable to at least two factors. The vast proportion of the 1,580 questionnaires returned as undeliverable were addressed to areas whose population is preponderantely or wholly black. This would imply that a large number of black apprentices were not reached by the mailed questionnaires. Furthermore, 35.3 percent of the respondents had completed their apprenticeship. Of this number, only 2 percent were black, indicative of the fact that few minority individuals were in apprenticeship training in earlier years.

The study team attempted to correct this situation by making provisions to distribute questionnaires to apprentices while attending related instruction classes. The returns from this follow-up effort, however, arrived too late to be included in this study. The small size of the minority groups in the sample restricts any measures of statistical significance generalizable to the larger population. Nevertheless, for qualified purposes quantitative analysis of the largest minority group, the black respondents, has been attempted in all succeeding conclusions and tables related to race.

b. Age

The age of the respondents, in great measure, reflects the entry requirements of the various programs relative to age. They center on the 21-30 years age grouping, into which 79 percent of the respondents fell.

AGE DISTRIBUTION N=1595

AGE GROUP	PERCENTAGE
16-20	7.6
21-24	39.6
25-30	39.4
31-40	10.6
41 and over	2.9

Most of them (62.9%) were married, with the white respondents showing a slightly higher rate (63.8%) than the black respondents (56.9%). The reverse is true as to those divorced or separated, with 13.9 percent of the blacks against 3.1 percent of the whites. The married rate is highest for those who completed their apprenticeship (73.1%), as against the rates for the active or cancelled respondents whose rates are 58.1 and 55.9 percent, respectively. But, the divorce rate of those who completed are twice those of the other two classifications. Both high rates may be factors of the older age of these respondents and their probable longer period of marriage. Marriage does not seem to have a noticeable effect on the retention rate of apprenticeship programs, although it may play some role at the entry level.

c. Union Membership

Union membership was claimed by 62.9 percent of the respondents. A breakdown by race shows that 63.3 percent of the white respondents are union members as against 51.4 percent of the black respondents. Of those completing apprenticeship, 69.0 percent belonged to unions. An equal percentage of the active apprentices also were union members; however, the rate for those cancelled was only 28.0 percent. Union membership not only would seem to have a stabilizing effect on the retention rates of programs, but may also facilitate admission into those programs.

d. Veteran Status

Veterans numbered 43.5 percent of the sample, of which 5.0 percent were black. This is in the same proportion, as that of the black and white respondents in the total survey returns. Within their own group, 47.2 percent of the black respondents were veterans, as against 43.0 percent among the whites. Veteran respondents showed a lower rate of completion (about 25.0%) and a higher rate of cancellations and in active status (both around 20.0%) than the non-veterans.

	VETERANS N=682	NON-VETERANS N=882
TOTAL	100.0%	100.0%
Completed	27.7	41.3
Cancelled	15.1	13.1
Active	56.2	45.6

Considering the limited, but active incentive of the monthly training assistance allowance to veterans, we might expect lower cancellation rates and higher completions for them than for non-veterans. Why this is not so is not

clear. The training allowance seems to be effective in getting them into the programs, but not in keeping them in.

Age and length of time in apprenticeship training, combined, might have some effect on the completion rates. Most of the respondents who completed their apprenticeship (71.1%) were 25 years of age, or older, while veterans would tend to be in a younger age group. Furthermore, 62.7 percent of the respondents had been in apprenticeship training 4 or more years, with 10.5 percent of them having entered their program more than 7 years before.

e. Education

Most of the respondents (83.3%) began their apprenticeship with a high school education, or its equivalent. Only 2.1 percent were limited to a grade school education, while 9.5 percent had some college credits. In comparison, 40.0 percent of their fathers had just a grade school education, 51.9 percent completed high school and 8.1 percent had some college education. The differential rate between white and black parents while favoring the white parents at all levels, was significant only at the college level, where the white rate was 8.3 percent against 4.5 percent for the black parents.

EDUCATIONAL LEVEL ATTAINED AT START OF TRAINING

COMPLETED	% RESPONDENTS	% FATHERS
Grade School	2.1	40.0
General or Voc. H.S.	83.3	51.9
Trade School	5.1	-
College: 1 Year	1.7	
2 Years	7.3	8.1
4 Years	.8	—
	100.0	100.0

During their apprenticeship, 7.0 percent of the respondents added to their formal education outside of the apprentice instruction program. About one-half of this group added college level courses, one-fourth completed high school, and 5.0 percent finished trade school training.

The "cancelled" respondents had added more college credits after entering their apprenticeship than did those who completed the program. Furthermore, the fathers of the cancelled group had a higher proportion of high school completions and college education (57.9% and 11.0% respectively) than those of the completed group (45.5% and 6.4% respectively).

EDUCATION SINCE ENTERING PROGRAM

YEARS OF COLLEGE	COMPLETED GROUP (%)	CANCELLED GROUP (%)
1	12.5	14.3
2	21.8	33.4
4	3.1	19.0

It would appear that the appeal of apprenticeship training and its retention rate is greatest for those respondents of grade-school level parents. The higher the educational attainment of the respondent and that of his father, the less the attractiveness of apprenticeship as a career opportunity.

f. Career Objectives

There is a strong pattern of career planning and fulfillment among the respondents. Over half (57.0%) had a prior interest in a particular trade. Almost half (49.2%), while still in high school, aspired to achieve "craftsman" status. Approximately one-fifth had higher aspirations than they subsequently obtained through apprenticeship. On the other hand, almost one-fourth had no definite plans while in high school. Less than four percent had lower aspiration levels than lower middle class, or craftsman status.

HIGH SCHOOL CAREER ASPIRATIONS OF RESPONDENTS

CAREER	TOTAL (%)	WHITE (%)	BLACK (%)
Craftsman	49.2	49.4	41.2
No Plans	23.8	24.2	17.6
Professional/Technician	18.2	17.7	31.4
Operatives	3.5	3.5	3.9
Owner/Manager	3.4	3.4	2.0
Clerical/Sales	1.7	1.6	3.9
Unskilled Labor	.2	.2	.0

In the case of the black respondents, their aspirations while in high school followed the general pattern of the white respondents but with some significant differences. Almost twice as many of the blacks hoped for careers as professionals or technicians, as did whites (31.4% to 17.7%). One quarter fewer blacks had no plans, and none of them expected a future as an unskilled laborer. Since 37.3 percent of the blacks, as against 22.7 percent of the whites, aspired to higher positions, apprenticeship training would seem to represent more downward mobility for the blacks than for the whites.

The actual jobs which they subsequently obtained, prior to their entry into the apprenticeship program, may have shattered their high school aspirations and been a factor in directing them into apprenticeship training.

OCCUPATION	% ASPIRING IN HIGH SCHOOL	% IN POST H.S. OCCUPATIONS	FATHER'S OCCUPATION (%)
Craftsman	49.2	7.2	42.8
Professional/Technician	18.2	.3	4.8
Operative	3.5	58.9	26.3
Owner/Manager	3.4	.3	11.0
Clerical/Sales	1.7	3.0	6.6
Unskilled Labor	.2	7.2	4.3
Unemployed	-	3.7	4.2
Student/Military Service	-	19.4	-

Probably, the strongest influence to become craftsmen through appren-

ticeship training, was a factor of their father's occupation, or that of other members of the family and of friends. A total of 42.8 percent of their fathers were craftsmen. Broken down by race, however, twice as many of the white fathers were craftsmen (43.2%) than black parents (21.4%); more than 5 times as many black parents were unemployed as whites.

4. ENTRANCE INTO APPRENTICESHIP

Pursuit of vocational career education, in preference to a college education, is popularly attributed to those with low scholastic achievement or interest. If that is so, it is roundly negated by the survey respondents, 96.5 percent of whom rated themselves as "fair" to "excellent" students before entering the apprenticeship program.

a. Sources of Program Information

The method by which most respondents (75.3%) first heard about their apprenticeship training program was by word of mouth from friends, relatives, co-workers and their unions. The formal channels used were few. High School counselors were consulted by 13.3 percent, the State Training and Employment Service by 6.5 percent, the BAT by 2.3 percent and the JAC's by 3.1 percent. Their motivations centered strongly around two points, namely, a personal interest in a particular trade (57.1%) and because they expected higher earnings in the future, as well as money earned while learning (47.1%). Additional reasons given included the need for a job (6.5%), the influence of family and friends (11.7%) and varied other reasons (4.2%).

The pattern for blacks, however, differs considerably. They were more likely to utilize formal channels, with three times as many blacks as whites learning about their apprenticeship program through the State Training and Employment Service. None of them entered the program because of friends or family in that trade. In addition, more blacks entered the program because they needed a job.

Under the present disparity in the number of black members in the various unions, in the apprenticeship programs, and in the blue collar occupations, it is less likely for black youths, than for white youths, to have friends or relatives in jobs or occupations that could serve as sources of information for job openings, or for apprenticeships. They are basically dependent on formal channels, with some capacity for exerting pressure, to learn about and be admitted into apprenticeship programs.

b. Qualifying Procedures

Admission to apprenticeship was primarily based on interviews (63.5%), with written tests (41.5%) and aptitude tests (38.3%) next most frequent. An additional 12.7 percent took oral tests. As the figures indicate, many of the respondents underwent more than one procedure, particularly interviews and tests. Approximately 6.0 percent were selected for apprenticeship by their union, their employer, or through the VA. Of special interest is the fact that 10.7 percent of the respondents (6.4% of the whites and 2.6% of the blacks) were not required to take any tests. A slightly higher proportion of black applicants than whites underwent the various tests and interviews.

c. Waiting Period

There was very little dissatisfaction with the waiting period between their acceptance for training and their admission into a specific program of apprenticeship. Only 10.5 percent of the respondents noted that the waiting period was too long, as against 89.5 percent who found the wait acceptable; however, in the matter of the tests which they took, two fifths of the sample (39.5%) felt that the required tests were not related to the performance demands of the jobs in which they were being trained. No significant difference on this point was found between the black and white respondents. A clear majority accepted the validity of the tests in relation to their training. Almost 20.0 percent had been in another job training program before entering apprenticeship.

5. PROGRAM CHARACTERISTICS

Small companies with less than 50 employees (51.3%) provided apprenticeship opportunities for the greatest proportion of the respondents, with approximately one-half of them working in companies employing less than 10 workers. Moderate-sized companies, of 50 to 500 workers, claimed another 25.0 percent of the respondents. The balance of 24.7% were in large companies employing 500 to 10,000 or more workers. The small employers continue to be the major source for craftsmen.

This conclusion must be modified by a number of factors, however. These include the existence of an unknown number of unregistered training programs in the large companies and by the unclear line of demarcation between an apprenticeship training program and one that is production-line oriented.

a. Trade Training Selected

As might be expected, most of the respondents had sought training in the construction industry (64.4%), followed by 29.9 percent in industrial occupations. The balance of 5.7 percent were distributed in the service industries. The following breakdown shows the percentage of blacks to the total respondents in each of the indicated trades.

PERCENTAGE PARTICIPATION OF RESPONDENTS IN CERTAIN TRADES

BUILDING TRADES	ALL	BLACK	OTHER TRADES	ALL	BLACK
Electrician	21.0	1.9	Tool & Die	17.5	1.4
Carpenter	17.7	5.4	Machinists	7.7	4.2
Plumber	16.3	1.0	Graphic Arts	4.7	1.7
Sheet Metal	8.3	6.8	Mechanic	4.5	1.9
Painter	1.1	38.5	Dental Tech.	1.2	64.3
	64.4			35.6	

There is a differential rate of participation in each of these trades between white and black respondents. This is particularly noticeable in the electrician, plumber, mechanic and graphic arts trades, in each of which, the black respondents represent less than 2 percent of all participants; however, in the service area of dental technician, they surpass the whites, almost two to one. Within the sample of black respondents their rank order (1=highest number in

program) among the trades of their choice, or accessibility, also differed from the white sample.

TRADE	BLACK	WHITE	TRADE	BLACK	WHITE
Carpenter	1	3	Machinist	5	6
Dental Tech.	2	10	Tool & Die	6	2
Sheet Metal	3	5	Plumber	7	4
Electrician	4	1	Mechanic	8	7
Painter		9	Graphic Arts		8

b. Length of Training Period

Most of the respondents (65.8%) entered their programs between 1968 and 1971. But, almost thirty percent (mainly whites) had been in the program for over 5 years and about one-third of these, 7 or more years. Of the black respondents, 90.0 percent entered the program since 1968, as against 68.4 percent of the whites. These figures reflect the early paucity of blacks in apprenticeship programs as well as the problems encountered by many apprentices (30.6% of the whites and 10.0% of the blacks) in completing their training within a reasonable period of time.

DATE OF ENTRY	TOTAL (%)	WHITE %	BLACK %
1965 or before	10.2	10.5	4.3
1966 through 1967	19.5	20.1	5.7
1968 through 1969	32.5	32.7	28.6
1970 through 1971	33.3	32.5	50.0
1972	4.5	4.2	11.4
	100.0 (N-1561)	100.0 (N-1491)	100.0 (N-70)

c. Current Status in Program

The current status of the respondents showed that half of them (50.1%) were still in the program, more than a third (36.0%) had successfully completed their training, and the remaining 13.9 percent had cancelled.

STATUS	TOTAL (%)	WHITES (%)	BLACKS (%)
Completed	36.0	37.0	19.2
Active	50.1	49.6	57.3
Cancelled	13.9	13.4	23.5
	100.0(N-1551)	100.0(N-1483)	100.0(N-68)

The rate of cancellations for the blacks appears to be almost twice that of the whites and, conversely, they complete the program only half as frequently as the whites. The encouraging factor is that the greatest proportion of the black respondents (57.3%) are currently active in the program, reflecting the more recent entry of blacks, in general, into apprenticeship training programs. Nevertheless, their high drop-out rate would have to be reduced if they are to complete the program in similar proportion to whites.

d. Reasons for Leaving Program

Of the respondents stating a reason for their cancellation from the program, the three reasons most frequently given were, "not learning enough" (22.5%), "needed more money" (18.7%), and "lost interest" (16.0%). However, many of the reasons outlined under the heading of "other" (11.5%) appeared to be money-related.

Only 7.2 percent of the cancelled group felt they were not treated equally, with blacks perceiving this more than twice as often as whtes. The incidence of leaving because of illness, the need for more money, or of being dismissed was almost twice as high for the black respondents as for the whites. On the other hand, the proportion of whites leaving because they were not learning enough or because they lost interest was more than twice to three times the rate of the black respondents. Because of the extremely small sample of 20 black respondents, these comparative figures should be considered with caution. There is great need to ascertain, with much more data than is here available, the reasons for the overall very high rate of cancellations among black apprentices.

REASON FOR LEAVING	TOTAL	WHITES (%)	BLACKS (%)
Not learning enough	22.5	23.6	10.6
Needed more money	18.7	17.9	30.0
Lost interest	16.0	16.8	5.0
Dismissed	11.5	10.8	20.0
Military service	10.0	10.1	10.0
Not treated equally	7.2	6.7	15.0
Sickness	2.4	2.2	5.0
Other	11.5	11.9	5.0
	100.0(N-288)	100.0(N-268)	100.0(N-20)

e. Graduates Versus Drop-Outs

Evidence of upward mobility can be found in the improved socio-economic status of those respondents who completed the program, relative to their father's status. The majority of these respondents now were in the lower middle class, with 90.0 percent of them craftsmen, compared to only 42.8 percent of their fathers. Among the latter, 26.3 were in an upper lower status as operatives, as against only 3.5 percent of the respondents.

There were only two levels in which they had not, as yet, caught up. In the owner-manager, lower-upper class, 11.0 percent of the fathers compared with less than 3.0 percent of the sons; and in the professional-technical, upper-upper class, which 5.0 percent of the fathers had achieved, as against less than 1.0 percent of the sons.

The pre- and post-apprenticeship training earnings of the respondents dramatically illustrates the financial benefits of their training and its effectiveness as an avenue for upward mobility.

HOURLY WAGES	TOTAL N-1520		WHITE N-1450		BLACK N-70	
	% Before	% Current	% Before	% Current	% Before	% Current
No Income	10.0	.	10.5	.	18.6	.
Under $2.99	50.4	6.5	50.2	5.7	35.7	18.1
$3.00-$3.99	27.8	20.1	27.4	20.0	35.7	22.7
$4.00 and above	11.7	73.4	10.9	72.8	10.0	59.1
	100.0	100.0	100.0	100.0	100.0	100.0

Analysis of the above reveals the highest proportion of respondents (73.4%) currently earn $4.00 per hour, or higher, as against a previous figure of 11.7 percent in that earnings bracket. The "before" and "now" figures for those earning $2.99 per hour, or less, including those with no income (60.5% and 6.5%, respectively), is equally marked.

These benefits, however, are not equally shared between the white and black respondents. Where previously 10.9 percent of the whites and 10.0 percent of the black respondents earned $4.00 or more per hour, this proportion changed to 72.8 percent for the whites and only 59.1 percent for the blacks. Racial disparities became more pronounced the higher the earning level. At the $10.00 and over per hour category there are 3.0 percent of the whites and zero percent of the blacks.

The value of apprenticeship training is even more emphaticaliy demonstrated when the data are broken down relative to the current earnings of those who completed versus those who dropped out of the program.

DIFFERENTIAL EARNINGS, BY APPRENTICESHIP STATUS (5)

HOURLY WAGES ($)	COMPLETED N-549	CANCELLED N-199
$2.99 and Under	1.3	12.6
$3.00-$3.99	8.6	33.2
$4.00-$4.99	22.6	31.7
$5.00-$7.49	30.1	16.6
$7.50 and Over	37.5	6.0

Fewer than 10.0 percent of the graduates remain in the under $4.00 per hour bracket, compared to 45.8 percent of those that cancelled. Further, 67.6 percent of those completing currently earn over $5.00 per hour, compared to 22.6 percent of those cancelled, and while only 6.0 percent of the latter earn $7.50 or more per hour, the comparable rate for the completions is more than 6 times higher (37.5%).

Considering that the pre-apprenticeship earning figures of the dropouts parallel those of the other entrants, it becomes apparent that the immediate consequence of terminating apprenticeship training results in lower current earnings than if the training had been completed. This may be only a temporary effect for those who cancelled in order to continue their education, particularly at the college level. In terms of projecting lifetime earnings as between the two

groups, the available data are useful only as an indicator of trends for the current and immediate future.

6. RESPONDENTS' VIEWS OF THE PROGRAM

After their first few months in the program, most respondents (61.1%) recounted feelings of satisfaction. Only 5.9 percent were very dissatisfied. The balance of the respondents were either neutral (17.0%) or dissatisfied (21.9%). As might be expected, those who cancelled looked back with greater dissatisfaction than those who completed the program and those who are still in the program (42.0% to 21.0%). Blacks were somewhat more enthusiastic than whites (70% to 60%).

The program rating rose with the length of stay in the program. Of the 724 respondents who subsequently cancelled and those who completed the program, 81.2 percent felt the program had been fair, good or excellent, as against 18.8 percent who rated it poor to very poor. Little racial differences were indicated in the very small sample of black respondents, although somewhat more blacks than whites (58% to 48%) were favorable. Significant differences do appear between graduates and dropouts, with the latter negatively evaluating the program three times as frequently (dropouts 32%, graduates 13%).

Regardless of their program experiences, respondents seemed to have come out of the program better workers. An overwhelming number of the respondents (92.5%) rated themselves currently as good to excellent workers. As students before entering apprenticeship, only 56.7 percent had so rated themselves.

a. "Best" and "Worst" Parts of the Program

Respondents' evaluations of the "best" and "worst" parts of the program offer some indicators of the strengths and weaknesses of the program. The total sample's responses to naming the "best" parts of the program centered around "working on the job" (83.4%) and "being taught by journeymen" (51.6%). The "worst" parts of the program were felt to be "poor classroom teaching" (35.4%), "not enough money" (33.1%), and the limited diversity of skills taught (23.8%). The number of multiple responses shows that the respondents found more things right with the program (3453 responses), than wrong (2166 responses).

It is interesting to note that while 51.6 percent of the respondents considered being taught by journeymen as one of the "best" parts of the program, another 13.8 percent objected to the poor quality of journeymen instructors. On the other hand, where poor classroom teaching headed the list of "the "worst" parts of the program," with 35.4 percent of the respondents so indicating, 28.7 percent of the respondents reported that their classroom teacher was among the "best" parts of the program.

On a comparative basis, there was a surprising consensus among the active, cancelled, and graduated respondents, when ranked according to what they considered the "worst" part of the program (1) and next "worst."

	ACTIVE	CANCELLED	COMPLETED
Not enough money	2	1	1
Poor classroom teaching	1	2	2
Lack of diversified training	3	4	3
Too many years required	4	3	4
Not treated equally	5	5	5

b. Length of Training

Despite the long, rigorous training, fully two-thirds (64.8%) of the respondents felt the length of the program should remain the same. Even half of the dropouts agreed with the program length; however, twice as many dropouts as graduates favored shortening apprenticeship training. It is quite possible that those graduating into the ranks of journeymen would not be inclined to facilitate additional competitive entries. Interestingly, 6.3 percent of the respondents felt the length of the program should be increased.

c. Admission to Programs

Only 20.3 percent of the respondents knew of individuals who had been denied admission into apprenticeship programs. The reasons they believed individuals had been rejected were primarily due to lack of education, failing a test, or the age of the applicant. The remainder were allegedly not admitted due to reasons of race, sex, and English language limitation. Among the black respondents, education, and race, in that order, were the main reasons given for rejection.

REASONS BELIEVED FOR REJECTION	PERCENTAGE OF RESPONDENTS
Education	28.8
Failed test	23.9
Age	19.6
Race	7.6
Sex	2.3
English Language Limitation	.01

If we relate test failures to the insufficiency of education, then the latter could be held accountable for 52.7 percent of the rejections. Race is not seen, even by the black respondents, as a principal cause for limiting admission to programs.

d. Working at Trade of Training

The most significant finding relative to the 553 respondents who completed the program is that 96.0 percent of their number have been working at the trade in which they were trained. Furthermore, 84.0 percent have worked steadily, 40-52 weeks per year, at their trade. It should be noted that 46.0 percent of the dropouts responded affirmatively, when asked if they work in the trade of their training. Of this group, 72.0 percent were working steadily. Considering the demonstrated reduced earnings of dropouts, the likelihood is that they work with fewer skills.

The contrast between the white and black respondents once again appears, as the proportion of blacks working at the trade of their training reaches only

52.0 percent, compared to 85.0 percent of the whites. The difference cannot be attributed solely to the larger proportion of black dropouts since even when blacks complete the program, they do not find work as easily as whites.

Of the 122 respondents (16.2%) who have not worked at the trade in which they were trained, the four major reasons given were:

REASONS	PERCENTAGE
Developing other interest, advancement	36.9
Insufficient money	19.8
Lack of security	14.4
Dismissed or laid off	10.8

The rest of the stated reasons included, among others, illness, "work too hard," and military service.

e. Satisfaction with Present Trade

The respondents (84.2%) were satisfied predominently with their present trade, with another 7.2 percent not certain. The balance (8.6%) would like to change or are looking for another job. Three-fourths felt that their apprenticeship training prepared them, from somewhat well to very well, for their current jobs. The remainder did not consider their apprenticeship program helpful, with more than half of them seeing no relationship between their training and their present job.

A more objective criteria of the value of their training lies in their comparative earnings before they entered apprenticeship and currently. The vast majority (93.9%) admitted higher present earnings, but only 54.4 percent of them attributed the increase directly to their apprenticeship training.

This increase was not shared equally by the black respondents and those that cancelled. Almost five times as many blacks as whites (24.0% to 5.6%) reported no increase in their earnings, although three-fourths of the blacks were now earning more. The dropouts did not credit apprenticeship training for their increased earnings as much as did those who completed the program.

Fully one-third of the respondents, and more than half of the dropouts (56%), felt that they would have been earning the same had they not been in apprenticeship training. Further, 11.8 percent of all respondents felt that they would have earned more, with three times as many black respondents as whites sharing this opinion. Similar sentiments were far less frequent among dropouts than these black respondents. Only 19% of dropouts and only 10% of those completed, compared to 32% of blacks, felt they would have been earning more now if they had never been in apprenticeship training.

f. General Comments of Respondents

The open-ended comments offered by a full one-third of the respondents, and often at great length, helps to identify qualitatively the degree and course of dissatisfaction. The problems associated with related classroom instruction were particularly elaborated upon. Some excerpts of illustrative comments, positive and negative, follow:

"I attended a vocational school at night during the beginning of my apprenticeship and found it to be a job. Everything covered was basic high school math and drafting."

"Classrooms were overcrowded, most students uninterested but serving the required time. The material being taught was vague, much of which was unrelated to my job and insufficient time was allowed for students' questions."

"Three hours of straight lecture after working hours can be discouraging."

"I trained as a chemical technician, but the classes taught bacteriology also, which enabled me to get a job as a biological technician also. It was a good program with excellent teachers."

A first-class mechanic who rated the program as "excellent," had this to say:

"When I was in high school I disliked school very much. In the apprentice program, it was quite different, I really enjoyed it. The classes were small and the teacher would spend a lot of time with individuals. And more important, no question was considered stupid or silly."

One trainee transferred from an excellent classroom program because of distance. To his regret:

"There was no assigned program and poorly qualified teachers. Shop training did not exist. We were not assigned a journeyman and there was no effort made to familiarize us with the operating of machinery. Management looks towards apprentices as cheap labor. The type of work we did was sweeping, washing machinery, etc. Management, by no means, lived up to its agreement to train us."

The complaint of being used as "cheap labor" was prevalent, as was the protest over the low wages paid apprentices. In the tool and die industry, particularly cited was extremely low pay. Veterans' status was seen to pre-empt journeymen papers. To others, the college diploma was still perceived as superior. Bitterness at cutbacks, terminated programs, and lay offs were prevalent.

Blacks perceived far more unequal treatment and rejection from unions than did whites. They also acknowledged more help from BAT and the Veterans' Administration. Examples:

"I'm sure in order to enter an electrician union you must know someone that's already in. Nothing else will help!"

"Poor union control was my reason for leaving along with six other men enrolled in the apprenticeship program."

One black trainee spent close to two years in an apprenticeship program. He had to leave for military service. Upon his return, he could not re-enter the program.

"I went into the service. I wasn't allowed to finish training when I returned."

Some apprentices referred to others they believed had been treated unfairly. For example, one of the successful blacks dropped out of college, needed a job, and knew someone who helped him get into a carpentry program. He knew of others who had been denied admission into a carpentry program because, he believed, of race. His comments:

> "I learned my job through experience on the job. Teacher in classroom didn't tell class too much about job."

Another black who was laid off knew of an applicant to the tool and die trade who was rejected because of race. This respondent was unable to complete the tool and die program, despite his veteran's status and union membership.

A Cuban who felt he had not been treated equally nevertheless completed a tool and die program, but did not work at his trade because of the "low earning compared to other trades with much less skills." He felt well-prepared for his new job as injection molding foreman.

BAT helped a black veteran to complete a dental lab technician apprenticeship during his residency at Rahway State Prison. His comments:

> "As a resident of Rahway State Prison I must state that the Dental Lab Program is the only true vocational program here and is very beneficial for both the inmate apprentices and the State of New Jersey. As the program is 3 years long, there should be some stipulation for release upon completion of said program, as a man is now capable of really supporting himself and would no longer be a burden on the state."

A 57-year-old woman (specified her age) became a lab technician with the help of union leaders. While she felt not treated equally, she knew of no individuals denied admission into the program and rated the program excellent upon completion:

> "I found the work challenging because half the class had graduated from high school. There was a built-in competition between us. I got a little discouraged and nervous when I saw the high school graduates finishing ahead of me or getting better grades. It was tough because I never had chemistry or biology in school, just basic arithmetic."

A young black woman who completed lab technician apprenticeship, also praised the program:

> "The knowledge I gained, refreshing my mind, interaction with people and stimulation to seek more knowledge, would have been missed."

A Puerto Rican who completed a machinist training program evaluated classroom teaching highly:

> "The training did help me a lot. While in high school I have my problems with the language. And while training I did learn math and related subjects which I could not understand before."

A Mexican, who was very dissatisfied with the program, felt he was not treated equally, received too little money ($1.50-$2.99 per hour), and had quit

the program because he lost interest. He had heard about apprenticeship training from the State Employment Service, as had most minority group trainees.

Recommendations from apprentices include:

"Veterans should receive higher priority in state apprenticeships, in all aspects of the program."

"A closer relation should be kept with apprentices by those in charge of state training, not the employers. Many employers only want mules to tow their barges and cheap labor."

"Broader exposure is needed to different phases of the trade, which can be gained by going to several companies hiring trainees."

"Classroom time should be shortened from 3 hours to 1½ hours, or the workload increased. Too many of us become bored, with nothing to do."

"The program should be shortened according to the individual's response to the pace."

"Guidance counselors are usually indifferent to the trades and push people to college. People in the trades should be brought into high schools to talk about their trades."

"Classroom training could be improved, with credit given for high school courses, particularly math."

"The smaller the shop and the harder the responsibilities of the apprentices, the better mechanic he becomes. The bigger companies don't seem to care . . . the small jobbing (non-union) shops turn out the better tool makers."

7. PROGRAM SURVEY DATA – RELATED INSTRUCTION

A total of 66 instructors, teaching related instruction courses throughout the State completed their questionnaires.

a. Profile of Instructors

On the basis of this return, these instructors are, in the main (89.3%) 31 years of age and older, with almost 60 percent 41 and over. They are prdominently male (only 1 female in our sample); basically white (only two of the instructors were black); about half of them are union members, mostly in the building trades; a little more than half (54.5%) have had some college education, with the rest having completed either vocational high school or trade school (15.1%) or else general high school or its equivalent (30.4%).

They represented 21 separate trades, with 86.4 percent of them having been active in their trade 10 years or longer, and three-fourths of them still active. Most of those no longer active in their trade, gave teaching as their reason. Over 60% had been instructing apprentices for three years or longer, with all but one doing their teaching in classrooms.

The size of their classes generally (78.7%) average 11 to 20 students. Only

9.1 percent had larger classes (21-30 apprentices) and 12.2 percent smaller than 11 apprentices. A little over one-third of the instructors (34.4%) also teach apprentices on-the-job. All but one respondent conducted their related instruction classes at night, with 80 percent of them devoting an average of 6-10 hours per week to this task.

b. Quality of Classroom Instruction

Related instruction runs to a minimum of 144 hours. Most of the instructors (67.7%) were satisfied with the present length of time; however, another 15.4 percent would prefer a somewhat shorter number of hours of classroom instruction, while a proportionate number of instructors (16.9%) would like courses to run from "somewhat longer" to "much longer."

They found their students "receptive" (62.5%) to "very receptive" (28.1%). The rest (9.4%) of the instructors rated their students "neutral" on this question. Generally, they did not consider absenteeism to be a problem. About 70 percent of them did not encounter much absenteeism. "Some absenteeism" to "much absenteeism" was reported by 28 percent of the instructors, while only one instructor had "no absenteeism" whatever. Dropouts were also not considered a matter of concern. About one-third of the instructors (30.8%) claimed "no dropouts" and only one of them had "many droputs." The balance of 67.7 percent had "some dropouts," or "not many dropouts."

Textbooks were used by over 90 percent of the instructors, and other instructional materials by about 86 percent of them. Fully one-third of all the instructors did not find the textbooks and the instructional materials adequate. Complaints about them were many, including the following:

Out of date	Books are not comprehensive	Out of publication
Little choice	Relate more to industry	Takes too long to get
Too costly	Need more demonstration equipment	Not enough

The above data do not appear to support the apprentices' claim of crowded classrooms. Passing on the qualifications of the instructors would require more data than that obtained, since it involves not only a knowledge of their trade, but also the ability or skill to teach others. On the latter score, their educational background does not indicate any formal training as teachers, whatever may be their innate abilities. Three hours of classroom at night, after a hard day's work, can be onerous. Additional data would also be needed regarding the subject matter taught and its relevance to the job training, particularly as between classes for specific trades and those that combine apprentices from more than one trade.

8. PROGRAM (EMPLOYERS) SURVEY DATA

The great amount of time and effort that went into this part of the survey produced a very limited rate of response. An initial general mailing, inquiring into the existence of an apprentice training program, went to 7,640 employers and unions, including 1,940 programs registered with BAT. It brought only 511 responses. These were broken down by type of sponsor and whether they had a current apprenticeship training program, whether they had one formerly, or never had one:

TYPE OF SPONSOR	CURRENT	FORMERLY	NEVER	TOTAL
Companies	148	64	275	487
Unions	12	-	10	22
Union Associations	2	-	-	2
Total	162	64	285	511

A follow-up questionnaire sent to the 226 current and former program sponsors resulted in a total of 48 responses, with no unions represented in the sample. Fifteen of these respondents claimed not to be either present or former sponsors of apprenticeship training programs–contrary to their initial response. The survey data on this sample is, therefore, limited to the 33 net respondents currently sponsoring a program and the 287 apprentices training in those programs.

a. Sponsor Characteristics

Seven of these sponsors, with employee populations of 500 or more, accounted for 216 (75.2%) of the apprentices. Most of the balance (21.2%) of apprentices were being trained in 13 companies employing 50-499 workers each. These figures are contrary to those obtained from the survey sample of apprentices which showed most of them working for smaller companies.

The difference can be accounted for by the skewed and much smaller sample of sponsor respondents, as well as the types of programs involved. One of the respondents with over 10,000 employees was conducting a management training program with 55 enrolled apprentices.

At least 14 trades are represented in the 33 programs, with 90 percent of the apprentices clustered in six trades.

TRADE	NO. OF SPONSORS	NO. OF APPRENTICES
Technician	3	92
Management	1	55
Mechanic	1	40
Machinist	7	37
Manufacturing	3	21
Tool and Die	8	14
Total	23 (70.0%)	259 (90.0%)

b. Program Entry Requirements

Minimum age for admission into an apprenticeship training program ran from none to 18 years, with 75% of the respondents requiring a minimum age of 18 years and 15.6 percent having no minimum age limitations. The rest demanded 17 to 17½ years.

The maximum age requirements showed a much greater range. One-third of the sponsors had limits running from 23-30 years. A similar percentage had a maximum age of 65, or no maximum at all. Only 14 percent set the limit at 22 years or less.

Almost 79 percent of the sponsors required a high school, or equivalent, education. Another 14.2 percent had no minimum educational requirement. Only one employer was satisfied with merely an elementary school education, while another would accept at least 2 years of high school.

Admission tests were given by less than half (41.9%) of the respondents. The remainder required no test. Tests given varied greatly and included standard tests of mechanical comprehension, general intelligence, aptitudes, dexterity, arithmetical ability, educational level, and others, as well as personal interviews and a trial period. As predictors of success, one-third of these tests were not considered adequate by the respondents themselves.

Physical examinations were required by only 38.7 percent of the respondents. A criminal record would be a bar to admission into 17 percent of the programs. There were a number of other scattered admission requirements listed, including seniority, citizenship, resident of area, good work record; must be a company employee; have an interest and desire to learn, an ability to read, write and figure simple arithmetic.

c. General

More than half of the respondents (54.8%) actively recruit apprentices. The procedures employed for this purpose are fairly limited, such as advertising in a newspaper, on local high school and vocational school bulletin boards, and within the company itself.

The minimum journeymen-to-apprentices ratio set in these sponsor organizations ranges from 1 to 1 up to 10 to 1, with only one company represented in each extreme end. The median is between 3 to 1 and 4 to 1, with five sponsors in each group. No relationship was indicated between these ratios and the size of the companies (number of employees), the number of apprentices in the program, or the trade of training.

9. INTERVIEWS

a. School Counselors

Vocational counselors were interviewed in ten high schools and in county vocational-technical high schools located in five counties, namely Essex, Union, Hudson, Bergen and Passaic counties. With the one outstanding example of Bergen County Vocational-Technical High School, the knowledge, attitude, and effort relative to apprenticeship training verged on the indifferent. Industrial arts departments, with work-study programs, were seen as adequate substitutes for apprenticeship training.

As a general rule, counselors took no initiative, leaving it up to the individual students to indicate their interest or preference. Information to students vis-a-vis apprenticeship was limited to postings on the high school bulletin board, or mailings to the students' homes. Counselors, by and large, were uninformed about apprenticeship opportunities.

Figures given on students enrolled in apprenticeship programs were vague and, in most instances, represented a very tiny proportion of the student body. Counselors claimed lack of interest on the part of the students and a preferred

goal to continue with higher education. This situation was alleged, even in schools with such high dropout rates, that one-half of the school's male population are freshmen.

Bergen County Vocational-Technical High School has had apprenticeship programs for 27 (27) years. Work-study programs are utilized as a vehicle for guiding students into apprenticeship programs. In the Fall of 1972, they had 121 students enrolled in union-sponsored apprenticeship programs. They have had an attrition rate of about ten percent in recent years.

Many of the schools covered had fifty to almost one hundred percent minority student enrollment, representative of the lower economic levels. The developing social consciousness among these groups has had the effect of their under-rating blue-collar occupations, in preference to the higher status professional and technical careers. This attitude, added to the inadequate vocational counseling given to them, are major factors in keeping down the number of applicants for apprenticeship programs.

b. Apprentice Dropouts

A list of 60 ex-apprentices was prepared for interviewing. These had been randomly selected from BAT's records of apprentices who had dropped out of programs, voluntarily or otherwise, during the previous two years (1970-71). Only 8 out of the sixty could be reached. The rest were not at their given address, or "away at work," or otherwise unreachable.

Those interviewed, in general, claimed to have learned much about their trade while in apprenticeship training. There were several complaints about poor teaching and inadequate related instruction classes. All admitted to having benefitted financially as a result of their training.

c. Unsuccessful Apprentice Candidates

Efforts were made to interview minority apprentice applicants for various trades – plumber, roofer, electrician, stationary engineer and bricklayer. They had taken the GATB tests between 1969 and early 1972 and had been interviewed by the respective JAC's, but had not heard further since then. These individuals had been assisted by the Newark Outreach Program (Workers Defense League) in preparing for the tests.

Out of 75 letters sent out to them by the Outreach Program requesting an interview, 18 were returned as "moved" or "unknown." Only 3 responded. One telephoned to inquire if there was a job available. The other two were interviewed. One of them, a veteran, took the GATB in January 1969 and was interviewed shortly thereafter by the Electricians' Union. He has heard nothing since. He is presently attending the Newark College of Engineering. The other apparently failed part of the GATB, also for electrician apprentice. He claimed that he could have been admitted if he were not black and if he had known an influential member of the union.

The Director of the Newark Outreach Program alleged discrimination of minority applicants generally. He claimed that the Newark Apprentices Information Center, with whom he has an agreement to receive lists of minority applicants for apprenticeship, fails to send him these lists sufficiently in advance

of the test dates. As a result, the Outreach Program cannot contact and help many applicants who could benefit from their services.

The Newark Apprenticeship Information Center, on the other hand, vouches that these lists are sent expeditiously. Data were obtained from the Center on the GATB tests for the same 5 trades referred to above, namely, plumber, roofer, electrician, stationary engineer, and bricklayer. These included the number that:

1. applied for the test;
2. completed their applications but failed to submit all the required documentation;
3. found eligible to take the test;
4. passed the test.

The attrition rate, at each successive stage, was sizeable, particularly at the second stage, where 343 out of 536 failed to submit all documentation. It should be noted that of those taking the tests, the percentage passing the test was fairly high: 83% for stionary engineers, 51% for bricklayers, 95% for plumbers, 93% for roofers, and 57% for electricians.

The story does not end there, however. The Center makes up lists of all these applicants and the results of the testing. It certifies the potential apprentices to the appropriate JAC's. The latter interview those that passed the GATB and qualify them further. The Center does not have follow-up information on what happens to these applicants thereafter, and, according to the Newark Outreach Program, neither do the applicants themselves.

IV. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

A. FINDINGS

Conceptually, apprenticeship, as a means of developing skilled craftsmen, combines all the best features of existing manpower training programs, including theoretical knowledge coupled with practical skills, a built-in paying job, a future, and the status of a skilled artisan, with better than average economic security. Despite these apparent advantages, apprenticeship programs, both nationally and in New Jersey, are the poorest financed, most understaffed and least utilized of all manpower training programs. The reasons for this state of affairs can be found in the basic structure of the apprenticeship programs, the varying definitions of apprenticeship, and the split responsibility in the administration of the programs, particularly in New Jersey.

Our comparative study of SAC- and BAT-administered states reveals no significant differences between them in terms of their apprenticeship training rate, or their completion rates. Nor, do these factors appear to be influenced by the extent of industrialization in any of the states. Apparently, other factors are operating. Perhaps, the answer lies not so much in the form of administration, but in the availability of jobs, or training slots, and who controls that key element in apprenticeship. Apprenticeship is many things – it is a job, an education, a means of develoipng skilled manpower, a means of controlling the size of the labor force in a trade, or an alternative to a college education or professional career, to mention some of its possibilities. These possibilities shape the character and number of apprentice applicants, the selection and admission processes, the content and comprehensiveness of the training programs and their rewards and, finally, the number of trainees attaining journeyman status. Concomitantly, they determine the structure of apprenticeship programs. To the extent that different interests view these programs as affecting them, to that extent they attempt to exert their influence or control over them. Today we see labor unions in major control of apprenticeship programs while government is trying to reclaim an authority over them which it relinquished long ago. The imbalance of control has permitted many abuses to develop, holding the programs at a minimal level. Only recently has government attempted to assume a more positive role through its enforcement of civil rights and affirmative action. Government still keeps the program financially undernourished and still makes no effort to change the basic structure. In fact, it has set up other training programs in direct competition with apprenticeship.

In New Jersey, the situation remains largely a jurisdictional stand-off due

to overlapping bureaucratic administrations and procedures that obtain between the legislatively-assigned responsibility of the State Department of Labor and Industry and the executively-authorized responsibility of the State Department of Education; between the State Department of Education and the BAT; between both of these and the county apprentice coordinators; and between all of them and the local Joint Apprenticeship Committees. This garbled jurisdiction for apprenticeship training continues in spite of institutional changes that have been going on in our economy, especially since the mid-1950's, when the number of persons employed in the services industries surpassed those in the goods-producing sector. This shift, while spelling a decline in the blue-collar occupations generally, has not lessened the demand for skilled craftsmen within those occupations, nationally or in New Jersey. This demand will continue and increase. However, given the present system of apprenticeship, its contribution to the ranks of skilled craftsmen can only remain a modest one. While the number of apprentices has been growing steadily, and at an accelerated rate since 1966, their graduates nationally represent only a small fraction (4.2% in 1970) of the total number of skilled craftsmen and foremen added to the labor force annually.

New Jersey's contribution is even more modest. Its record during the past 20 years shows that prior to 1964 the number of apprentices in the State increased more rapidly than the number for the United States as a whole – by over 90%, as compared to 73% for the country. However, since 1964, the reverse has been true, with the national growth rate exceeding that of New Jersey.

Further, while New Jersey's apprenticeship training rate has doubled during these 20 years, it still remains well below the national level. In fact, New Jersey ranks 44th among the fifty states in this matter. Additionally, the growth in the number of craftsmen, during the past decade, was only 12.9 percent for New Jersey, as compared to 21.4 percent for the country as a whole, despite the fact that the State's total non-farm employment kept pace with the national rate.

Within this context this present study was undertaken. Regretfully it was not possible to obtain desired data from the labor unions in the State. The apprentices, on the other hand, furnished revealing information on many aspects of apprenticeship.

In general, the apprentices indicated a substantial degree of satisfaction with their apprenticeship training. The advantages of their participation are marked, both in tangible benefits, such as increased earnings and steady work at a trade and in the "quality of life" improvements perceived. They make for interesting comparisons with the benefits derived from other manpower training programs, like JOBS, WIN, and JOB CORPS. The overall benefits of apprenticeship, however, are not equally shared by minority apprentices and the rest. Although the proportion of minority apprentices in the State has increased from a virtual absence in 1960 to 10.5 percent in 1972, with most of the increase occurring since 1968, their share of the benefits is consistently at a lower level than their white counterparts. A pattern of disadvantagement pursues blacks at every stage of the apprenticeship process. Statistically, they are less apt than whites to hear about apprenticeship programs, less likely to be admitted into apprenticeship, more prone to drop out, less likely to increase their earnings and

to obtain steady employment after completing their apprenticeship, and less able to join a labor union.

The data for all apprenticeship applicants show that their chances for admission into a program increasing if they are white, male, in the low to middle twenties, high school graduates, with friends or relatives in the trade to encourage their entry, with a long-standing interest in becoming a craftsman, have veteran status, are married and carry a union card. Approximately two-thirds of all apprentices surveyed were interviewed prior to admission into the program, 41.5 percent entered without any tests whatsoever. Nearly forty percent of the apprentices challenged the relevancy of these tests.

Over half of the apprentices had their training in companies employing less than fifty employees. Nearly two-thirds of the apprentices had sought training in the construction industry, followed by 29.9 percent in industrial occupations. Almost thirty percent of the apprentices had been in a program five years or longer, with about ten percent of them in a program seven years or more. Failure to complete their apprenticeship was attributed most frequently to their "not learning enough," "needed more money" or "lost interest." Only 7.2 percent of the dropouts felt that they had not been treated equally, with blacks citing this cause twice as often as whites. The drop-out rate for blacks was nearly twice that of whites, as was the frequency of leaving for causes of illness, need of money, or being dismissed. On the other hand, the frequency of leaving because of failure to learn enough, or because of loss of interest, was two to three times as high among white dropouts as among the black dropouts. Although the wages of program participants increase substantially over their pre-apprenticeship level, this increase is less for black participants than for whites. While 73 percent of the whites were now earning $4.00 or more per hour, only 59 percent of the black participants were in that class.

In the study, criteria for success included the following dependent variables:

(1) completing an apprenticeship training program
(2) increase in earnings
(3) steady employment in trade
(4) improvement in quality of life (see Appendix II)

To the extent that the sample of respondents resembles the total population of those who ever entered apprenticeship training programs, the chances for completion of the program appear favorable. Half the respondents were still active in the program, 36% had completed, and 14% had cancelled for one reason or another.

Increased earnings after completing the program are striking. Two-thirds now earn over $5.00 per hour, with one-third of them now earning over $7.50 per hour. The remaining one-third were earning less than $5.00 per hour, once they had completed the program. In this latter group, only 9.9 percent were earning $4.00 per hour or less. Before entering apprenticeship training, almost half the respondents had earned only $1.50-$2.99 per hour. One-quarter had earned $3.00-$3.99 per hour and virtually none had earned over $5.00 per hour. The remaining quarter had ranged from no previous income to $4.00-$4.99 per

hour, which 6% had previously earned. These increased earnings clearly contrast with the pattern experienced by those who drop out of the program. While age, education, and experience can be expected to produce some increase in earnings, the dropout made far less progress proportionate to the trainee who completed the program. Current earnings cluster around the $3.00-$3.99 per hour rate (33%) and the $4.00-$4.99 per hour level (32%) for the dropout. A much higher proportion than completions remain under $3.00 per hour, which means under poverty level. Financial rewards for staying in the program are demonstrably effective.

The third major criteria of success, steady employment in the trade in which trained, found 84% of those completing the program working 40-52 weeks per year. Discrepancies between blacks and whites were high in that only 52% of blacks completing the program found steady employment in their trade.

Improvement in the "quality of life" was attained by the respondents in several dimensions. First, socio-economic status, as measured by the Edwards occupation education and income index, showed a five-fold increase between the average trainee's pre-apprenticeship and post-apprenticeship status. Almost twice as many of those who completed the program attained lower-middle class status compared to dropouts. Second, union membership was conferred on two-thirds of those who completed apprenticeship training. The union card can be expected to accrue long-term benefits in protection of employees rights and privileges as well as obtaining future employment in the trade. Closely related is the status of journeymen, which was earned by all who completed the program. Within the skilled trades, journeymen status is the mark of a professional. A final measure indicating improved quality of life is the self-rating as a worker now, in which 93% of the sample rated themselves "good" or "excellent." This compared to only 57% rating themselves "good" or "excellent" as students before entering an apprenticeship program. While the change in role from "student" to "worker" may account for the improvement in self-image, practically it may be assumed to be the result of apprenticeship training.

On each of the criteria for success, apprenticeship training programs in New Jersey have been very effective in the judgment of the trainees surveyed. It is interesting to note that the substantial gains in the respondents' lives were less enthusiastically attributed to the quality of the programs than one might expect. From their early exposure to the program, when two-thirds felt "somewhat satisfied," to their final evaluation, when less than one-half rated their programs as "good" or "excellent," disappointment is apparent. One is tempted to conjecture on the causes of this lessening of satisfaction – let it rest on the *mal du temps.*

The study did pinpoint strengths and weaknesses within the program, through respondents' evaluations of the "best" and the "worst" parts of the program. The most significant finding was that 84% of the responses designated "working on the job" as the most valuable part. Being "taught by the journeymen" and "working with other people" were the other highly favorable aspects. Only 29% valued the classroom experience highly. Three-fourths of the respondents received classroom instruction and felt this to be the "worst" part of the apprenticeship training. What was supposed to be related instruction was termed irrelevant by one-third of the trainees. Other complaints with the

program were: "insufficient money while training," "too few skills taught," and "too many years required," but no single item was the *bête noir*. The complaint of "being used as cheap labor" was prevalent, as was the protest over the low wages paid apprentices, particularly in the tool and die industry. Veteran's status was seen to pre-empt journeyman papers; to others the college diploma was still perceived as superior. Bitterness at cutbacks, programs terminated, and being laid off, were sources of many comments.

B. CONCLUSIONS AND RECOMMENDATIONS

AGENCY TO ADMINISTER PROGRAM

If the scope and quality of apprenticeship training in New Jersey is to be improved, the State must make an unequivocal choice of the agency to administer the State's apprenticeship program. The present situation contributes to a lack of jurisidictional clarity and an interdepartmental divisiveness that impedes utilization of all the resources that are actually available.

While the Department of Education can point to a long history of involvement with vocational education and apprenticeship training, a closer examination of this experience reveals that the apprenticeship program has enjoyed a very low priority in terms of the Department's allocation of staff and funds. It is dependent on the Bureau of Apprenticeship and Training and the county apprentice coordinators for field supervision and the development of OJT opportunities and for the maintenance of adequate records and statistics.

The State Department of Labor and Industry, legislatively designated as the State agency for apprenticeship, has never been permitted to function in this capacity. Its relationship to apprenticeship has been limited to the activities of its Training and Employment Services, including the latter's operation of Apprenticeship Information Centers, outreach programs and the recruiting, testing and referral of applicants for apprenticeship, as well as some placement functions. It would appear that the full potential of this Department is not being utilized and that its more active role in apprenticeship programs is indicated.

As for the BAT in New Jersey, its performance rates it among the best in the country, despite its limited staff and resources and the restrictions which these impose on maintaining adequate supervision, filing and recording of data on a current basis, and meeting its many related responsibilities.

Theoretically, one single State agency, with complete authority for all aspects of apprenticeship training programs, with the necessary means to carry out these responsibilities, would be most desirable.

RECOMMENDATION NO. 1

Based on the Department of Education's long experience, it is recommended that the State take legislative and executive action to clearly mandate authority and responsibility for apprenticeship training in New Jersey in the Director of Apprenticeship Training, Division of Vocational Education of the Department of Education. An associated recommendation is that the position of Director of Apprenticeship be upgraded in pay and recognition commensurate with its increased responsibilities.

APPRENTICESHIP ADVISORY COUNCIL

The smooth interlocking of the individual activities of BAT, DVE, JAC's and the Department of Labor and Industry is essential for the successful administration of the State's apprenticeship program. A joint operating council on which the Commissioners of Education and Labor and Industry would serve as ex-officio chairmen, with representatives from DVE, BAT, and the Department of Labor and Industry could best serve this purpose. BAT would participate on this council in an *ex officio* capacity.

RECOMMENDATION NO. 2

It is recommended that a State Apprenticeship Advisory Council be established to advise the Director of Apprenticeship on all aspects of the apprenticeship program; to exchange information on their respective apprenticeship activities, problems and plans; to coordinate their individual efforts; and to make recommendations for bettering the overall effectiveness of the program. It is important to point out that the viability of such councils is dependent upon the extent of the State's commitment to the program.

STATE APPRENTICESHIP REPRESENTATIVES

At present, New Jersey's commitment to apprenticeship training is minimal, consisting of a full-time director of Apprenticeship Training and a small secretarial staff. It does not have a field staff, like BAT, to promote apprenticeship training throughout the State. An increase in the State's investment can be expected to raise the State's apprenticeship training rate. One improvement would be to increase the staff of knowledgeable and capable field representatives.

Such a staff is available in the 21 county apprenticeship coordinators presently employed within the various county school systems. Many of their duties parallel those of the BAT field representatives, including supervision of related instruction. They are in close contact with program sponsors and their line and middle management and capable of putting together an apprenticeship program.

Transferring this staff to the state apprenticeship agency would tighten up the program, possibly effect economies in public expenditures in relation to apprenticeship training and make immediately available an experienced state staff. Furthermore, such a staff could serve as liason between the state apprenticeship agency and the local school systems in promoting apprenticeship and for the channeling of students in that direction.

RECOMMENDATION NO. 3

It is recommended that the county apprenticeship coordinators be placed directly under the Director of Apprenticeship Training.

COUNSELING SERVICES

The survey findings underscored the fact that, generally, the high school vocational counselors were indifferent to the potential of apprenticeship. Many of them considered their industrial arts departments and work-study programs as substitutes for apprenticeship training. By and large, they appeared uninformed

about apprenticeship programs and their opportunities.

RECOMMENDATION NO. 4

It is recommended that the Division of Vocational Education and the Director of Apprenticeship Training closely coordinate their programs in vocational education and cooperative education with apprenticeship training to enhance the articulation between these programs.

SUPPORTING SERVICES

Present methods of data collection, storage and retrieval are inadequate, hampering analysis of program development and current status which result in reports of uneven quality. Conflicting statistics published by DVE and BAT, not to mention internal inconsistencies in the basic data, further underscore the need for markedly improved record keeping.

There is a pointed need for one central source of record keeping that would contain complete and current data on all apprentices and sponsors in the State, with appropriate staff to collect the necessary information, record it, analyze it and provide statistics, reports and research thereon. In this connection, it would be helpful if, initially, more personal data was obtained from applicants, perhaps on the back of the apprentice application forms.

RECOMMENDATION NO. 5

It is recommended that a computerized system of data collection and processing be established within the Division of Vocational Education in conjunction with BAT. The Director of Apprenticeship Training would be responsible for gathering all information on apprentices and sponsors and for the issuance of regular reports, statistics and other publications on the status of the apprenticeship program.

RECRUITMENT, SCREENING AND TESTING

The advent of Title 29 and Title V11 of the Civil Rights Act suggests that the interest of all concerned in apprenticeship would be best served if unions, management, and JAC's were to cede all recruitment of candidates for apprenticeship to a public agency. In fact, the State Training and Employment Service of the Department of Labor and Industry, the Apprenticeship Information Center and the Outreach Programs now function in this way. This practice should be made universal.

Candidates would be recruited, tested and referred to the sponsor training agency. Final selection would remain with the sponsors. However, they would have to report back to the referral source on the status of those referred to them. This change would go far to remove sponsors from charges of nepotism and discrimination.

RECOMMENDATION NO. 6

It is recommended that greater utilization should be made of the State Training and Employment Service to reduce discriminatory recruitment practices.

SUBSIDIZATION OF APPRENTICESHIP TRAINING

Subsidizing apprenticeship programs has been frequently urged in the past, but been regularly rejected on the ground that it is in the employer's self-interest to train craftsmen and that it would occasion government interference and regulation of apprenticeship. If these objections were ever valid in the past, they are less so now. Public monies currently support and subsidize a large variety of on-the-job training and cooperative education programs, but have by-passed apprenticeship.

Indeed, government has made itself very much a factor in the administration of apprenticeship programs under Title 29. This may be termed a qualitative regulation of apprenticeship. We concur with the many long-standing recommendations of recognized authorities in apprenticeship training that government has a marked responsibility to increase the size of apprenticeship training through subsidization. Such support should be extended to both the employer and the trainee.

RECOMMENDATION NO. 7

It is recommended that the State's representatives in the Congress should be enjoined to seek legislation that would provide allowances, tax benefits and other inducements to participants in apprenticeship programs.

Meanwhile the State of New Jersey should immediately undertake a pilot program of subsidizing apprenticeship training in order to assess the value of this recommendation.

RELATED EDUCATION

The most frequent complaint expressed by apprentices, both those that graduated and those that dropped out, centered on the courses in related instruction. Almost every apprentice surveyed questioned the relevancy and quality of this instruction. Among current trainees, complaints on the related instructions rated second in the list of the "worst" parts of the program. Their dissatisfaction is further validated by the fact that roughly one-third of the instructors were disgruntled with the textbooks and instructional materials made available to them. And it should be noted that most of the instructors had long and active careers in the trade which they were teaching.

RECOMMENDATION NO. 8

It is recommended that the Division of Vocational Education of the State Department of Education, in conjunction with labor and industry representatives, review the program of related instruction for apprentices, particularly with regard to the adequacy and relevance of the teaching materials and instructional equipment. Special in-service training programs in classroom methods and strategies should be provided for the instructors of the related instruction component of the program.

MINORITY APPRENTICES

New Jersey's record of enrolling minorities in apprenticeship compares favorably with national experience. In the main, the burden for expanding the participation of minorities in apprenticeship, through equal opportunity and

affirmative action, is on the federal government. Minority participation in apprenticeship training, can be further advanced under Title VII both through the New Jersey Division of Civil Rights and the Office of the U. S. Attorney. Both agencies are urged to apply the standards under Titles 29 and VII to informal, as well as formal, programs of apprenticeship training. It should be noted that study findings indicate that the high attrition rate among minorities, from the date of application to final selection, cannot be attributed solely to discrimination, but rather to the fact that outreach programs do not provide adequate follow-up assistance to applicants.

RECOMMENDATION NO. 9

While the State Department of Education has accepted Title 29 as its equal opportunity and affirmative action program, it is recommended that the State utilize more freely the powers of the New Jersey Division of Civil Rights and the U. S. Attorney under Title VII of the Civil Rights Act. If anything, court decisions are likely to be more stringent and more difficult to evade than administrative rules governing equal opportunity and affirmative action.

A corollary recommendation is that the State require the full use of apprentice ratios on construction, funded in whole or in part by State monies. This does not disturb the bargaining process or agreements governing the apprentice/journeymen ratio. It insists only that the potential be utilized, a condition which is often not achieved. This should increase apprenticeship training generally and minority participation in particular.

Another corollary recommendation is that outreach programs be more closely monitored to insure more effective operation, especially in providing apprenticeship applicants with assistance in the preparation and submission of all required application forms.

PROGRAM ENTRY REQUIREMENTS

Some of the requirements for admission into apprenticeship programs are unrealistic, discriminatory and inequitable. Prominent among these requirements are fixed apprenticeship periods which disregard previous knowledge and experience; arbitrary maximum age requirements that violate federal laws; procedures which conflict with the aims of the federal Technology Mobilization and Reemployment Program; and qualifying tests that are unreliable and invalid.

RECOMMENDATION NO. 10

It is recommended that fixed apprenticeship periods should be used only as general guidelines. Pre-apprenticeship-related experience and the individual's achievement level in the program should be evaluated and credited towards reducing the duration of training. This practice is in existence in some trades.

It is recommended that maximum age limits be abolished. If health or other impediments affect an individual's productivity, these factors would be determined by the admissions procedures.

It is recommended that standardized tests, like the GATB, be used. Additional types of testing may be required to satisfy special job or safety standards.

It is recommended that the program sponsors be required to file with the Director of Apprenticeship Training the selection procedures, standards, and the importance of each criterion in the selection process.

APPRENTICESHIP INFORMATION

There is considerable evidence which correlates the number of apprentices in training, particularly from minority groups, and the lack of information about openings in the various trades. General high schools and even vocational high school counselors are often poorly informed about apprenticeship. The general public as well is too often equally ill-informed. A concerted, well-planned promotional program is needed.

RECOMMENDATION NO. 11

It is recommended that the Director of Apprenticeship Training, in conjunction with the Apprenticeship Information Centers of the Department of Labor and Industry, develop and actively pursue a statewide promotional program that will bring a greater public awareness of apprenticeship training opportunities that will improve the image and status of apprenticeship as a career.

By way of illustration, such a program could include a variety of approaches, such as the Governor proclaiming an "Apprentice Week"; the granting of meritorious certificates to selected sponsor and JAC members; giving certificates of appreciation to other individuals for lesser activities; completion ceremonies held by various apprenticeship committees yearly, with a banquet and distinguished speakers and the distribution of certificates of completion; annual "Outstanding Apprenticeship Awards," or trophies to exceptional apprentices; conducting job clinics for high school seniors by school counselors, personnel people from business and industry, and representatives of the state apprenticeship agency and its participating member agencies; regular conferences and workshops with high school counselors on apprenticeship training programs and opportunities; bringing in the same representative group as above; and periodic mailings of current follow-up material on the apprenticeship program to each high school counselor.

FOOTNOTES

1. *Encyclopedia Americana*, Vol. I, 1966, p. 124.
2. For details on the definition of apprenticeship and of apprenticeable occupations, see U.S. Department of Labor, Manpower Administration, *Handbook for Bureau of Apprenticeship and Training*, September 1968, pp. 6-12.
3. *Encyclopedia Britannica*, Vol. 2, 1970, p. 144.
4. James M. Motley, *Apprenticeship in American Trade Unions*, Johns Hopkins University Press Studies in Historical and Political Science, Series XXV, Nos. 11-12, (Baltimore: Johns Hopkins Press, 1907), p. 12.
5. N. J. Pension Survey Commission: Report No. 5, *State Care of Dependent Children in New Jersey*, (1932). Also, Carroll D. Wright, *The Apprenticeship System In Its Relation To Industrial Education*, U.S. Bureau of Education Bull-1908: No. 6, (Washington: 1908), p. 103.
6. James M. Motley, *op. cit.*, p. 13.
7. Robert F. Seybolt, *Apprenticeship and Apprenticeship Education in Colonial New England and New York*, (New York: Columbia University, Teachers College, 1917), p. 22.
8. Ray Marshall and Vernon M. Biggs, *The Negro and Apprenticeship*, (Baltimore: Johns Hopkins Press, 1967), p. 240.
9. Jack Barbash, "Discussion", in *Research and Apprenticeship Training*, (Center for Vocational and Technical Education, (University of Wisconsin, 1967), p. 27.
10. Vernon E. Jirikowic, *"Apprenticeship in the American Labor Movement,"*, in *Research and Apprenticeship Training*, pp. 34-35.
11. *Ibid.*, p. 33.
12. Don Lesochoier, "Working Conditions" in *History of Labor in the United States, 1896-1932*, Vol. III, (New York: MacMillan, 1935), p. 271. For a contradictory view, see Paul Douglas, *American Apprenticeship* and *Industrial Education*, (New York: Longmans, 1922), pp. 76-77.
13. Douglas C. North, *The Economic Growth of the United States, 1790-1860*. (New York: Norton, 1966), pp. 172-173.
14. Don D. Lesohier, *op. cit.* p. 272.
15. Carroll D. Wright, *op. cit.* p. 25.
16. Douglas C. North, *op. cit.*, pp. 173-174.
17. Carroll D. Wright, *op. cit.*, Also Paul Douglass, *op. cit.*, pp. 73-78.
18. N. J. Bureau of Statistics of Labor and Industry, *Fourth Annual Report 1881*, Chapter 2, and *Tenth Annual Report*, 1887, pp. 188-194.
19. Paul Douglass, *op. cit.*, pp. 222-223.
20. Don D. Lescohier, *op. cit.*, citing figures of P. H. Douglass with his own update, p. 284.
21. L. S. Hawkins, C. A. Prosser and J. C. Wright, *Development of Federal Legislation for Vocational Education*, Compiled by J. C. Swanson (Chicago: American Technical Society, 1962), p. 65.
22. U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, Handbook for Bureau of Apprenticeship and Training, (September, 1968), p. IV.
23. "Gregory Electric Company, Inc. vs. U.S. Department of Labor," (DC-SC., May 30, 1967), cited in the *Monthly Labor Review*, October, 1967, p. 53.
24. *Loc. cit.*
25. F. Ray Marshall, and Vernon M. Biggs, *op. cit.*, p. 13.
26. New Jersey Assistant Commissioner of Education, Division of Vocational Education, *Report on a Study to Determine the Trades in which Apprentices are Employed and the Number of Employed Apprentices Enrolled in Related Instruction Classes*, 1968-69, pp. 809. (This is the last published report on this subject).
27. F. F. Foltman, "National and State Apprenticeship, 1960-1966: Up to Date or Out of Date", in *Research in Apprenticeship and Training*, p. 132.
28. G. S. Rajan, *A Study of the Registered Apprenticeship Programs in Wisconsin* (Ph.D. Dissertation, University of Wisconsin, 1965), Microfilm No. 65-14, 1926. p. 159.
29. David J. Farber, "Apprenticeship in the United States: Labor Market Forces and Social Policy", in *Research in Apprenticeship and Training*, p. 6.
30. Jack Barbash, "Discussion" in *Research in Apprenticeship and Training*, p. 26.
31. *United States of America, Plaintiff vs. Plumbers Local 24, et. al.* U.S. District Court, District of New Jersey, Civil Action 0, 444-71. Consent Decree entered 7/28/72. (The Plumbers Union was cited in the original case but was later severed from the proceedings, although the case caption continued to include the union's name.)
32. U.S. Commission on Civil Rights, Advisory Committees, *Reports on Apprenticeship in California, . . . New Jersey, Wisconsin*, January 1964, p. 6.

33. For example, The Advisory Committee on Equal Opportunity on Apprenticeship and Training established by the Secretary of Labor in February 1963: and the additive of race relations consultants to BAT's staff, the Industrial Training Advisors.
34. F. Ray Marshall, and Vernon M. Biggs, *op. cit.*, p. 201.
35. The inclusion of transportation, communication and public utilities in the Goods sector follows the definition adopted by V. Fuchs, *The Service Economy*, (New York: Columbia University Press, 1968) National Bureau of Economic Research, Chapter 2.
36. *Ibid.*, p. 1.
37. *Manpower Report of the President*, 1972, Table E-11, p. 259; To obtain the ratio, Transportation and Public Utilities were transferred to the Goods sector, in accordance with the definition used in the text.
38. V. Fuchs, *op. cit.*, p. 37.
39. *Manpower Report of the President*, 1963, Table F-6, p. 198.
40. Morris A. Horowitz and Irwin L. Hernnstadt, *Learning the Tool and Die Maker Trade*, published by the U.S. Department of Labor, Manpower Administration as Manpower Research Monograph No. 17, 1970, Table I., p. 5.
41. George Strauss, *Apprenticeship: An Evaluation of the Need*, Institute of Industrial Relations, Reprint, No. 275, pp. 305, 306 and 332.
42. John T. Dunlop and D. Q. Mills, *Manpower Development and Utilization in the Contract Construction Trades*, Unpublished ms. prepared for the U.S. Department of Labor, Manpower Administration, (May 1972), pp. 84-85.
43. U.S. Department of Labor, *Compensation in the Construction Industry: Employment Patterns, Union Scales and Earnings*, Bull, 1956 (1970), p. 12.
44. Victor Fuchs, *op. cit.*, Table 15, p. 51.
45. Dunlop and Mills, *op. cit.*, p. 58.
46. *Loc. cit.*
47. *Manpower Report of the President*, 1972, Table A-12, p. 173.
48. John T. Dunlop and D. Q. Mills, *op. cit.*, p. 75. See, however, M. A. Horowitz and Irwin Hernstadt, *op. cit.*, pp. 7-12, and especially Table 2. According to this study on Tool and Die Makers, "the training paths differed . . . little in their effectiveness". (p. 7).
49. NJSA 34:1A-36 Chapter 198 (1953).
50. N. J. Department of Education, Vocational Division, *Apprentice Coordinators Manual* "Foreward": by Albert E. Jocken, Rev. 1964; and mimeo outline of "Joint Research Study of Apprenticeship Training in New Jersey" by Stewart W. Mills, February 15, 1972.
51. N. J. State Department of Public Instruction, Vocational Division, *Organized Instruction for Apprentices*. Circular No. 18 (Trenton, 1928), p. 1.
52. Herbert J. Lipsitz, *The Development of Federally Aided Vocational Education in New Jersey as Revealed by State Plans*, (PhD Dissertation, Rutgers University, 1954) pp. 15-16. The present name of the agency, the Department of Education (DVE) appears to have been adopted later, perhaps 1947.
53. Albert J. Jochen, *The History and Development of State and Federally Aided Day Trade and Industrial Schools in New Jersey from their Inception to 1943*, (PhD Dissertation, Rutgers University, 1947) pp. 89-93.
54. *Ibid.* p. 196; and Herbert J. Lipsitz, *op. cit.* p. 254.
55. Herbert J. Lipsitz, op. cit., p. 61.
56. J. Chester Swanson, *Development of Federal Legislation for Vocational Education*, (Chicago: American Technical Society, 1966), p. 90.
57. N. J. Department of Public Instruction, Vocational Education Division, Circular No. 18, p. 1.
58. *Ibid.*, p. 2.
59. *Apprentice Coordinators Manual*, Rev. 1964, "Foreward by Albert E. Jochen.
60. Herbert J. Lipsitz, *op. cit.*, p. 269.
61. N. J. Department of Education, *Annual Report of the Commissioner of Education*, June 30, 1945, p. 40; cited by Herbert J. Lipsitz, op. cit., p. 271.
62. *Apprentice Coordinators Manual*, Rev. 1964, "Preface" opposite p. 33.
63. N. J. Department of Education, Vocational Division, *Apprenticeship Training for Veterans of the Armed Forces* (Trenton, 1947), pp. 5-9.
64. N. J. S. A. 34: 1A-36 (1953).
65. *New York Times*, October 17, 1972.
66. *State of New Jersey Comprehensive Manpower Plan*, Fiscal Year 1973, State Manpower Planning Council, Department of Labor and Industry.
67. See Appendix Table A-4, for the list of states ranked by apprenticeship training rate.
68. U. S. Department of Labor, Bureau of Labor Statistics, *Directory of National and International Labor Unions in the United States, 1969*, Bull. 1665, (1970), Table 10, p.

76. The rankings are those in 1968 and are the percentage of employees in non-agricultural establishments who are union members.
69. New Jersey Division of Vocational Education, *Report on a Study to Determine the Trades in Which Apprentices Are Employed and the Number of Employed Apprentices Enrolled in Related Instruction Classes*, annually 1952-1968.
70. David J. Farber, "Apprenticeship in the U.S.: Labor Market Forces and Social Policy," Division of Research, BAT, U.S. Department of Labor. Paper presented before Conference on Research in Apprenticeship Training, University of Wisconsin, September 8, 1966. Table 2, p. 9.
71. Louisiana and Florida are excluded because not all apprenticeship figures were available. Both are SAC states.
72. U. S. Commission on Civil Rights, Advisory Committee, *Reports on Apprenticeship*, January, 1964, p. 91.
73. California, Human Relation Agency, Department of Industrial Relations, Division of Apprenticeship Standards, "News Release", IR-304, Undated, but apparently on or about July 30, 1971.
74. Acknowledgement is made of the dependence of this section on Alfred S. Drew and Associates, *Educational and Training Adjustments in Selected Apprenticeable Trades*, Clearinghouse for Federal Scientific and Technical Information, Accessive Numbers PB-19054 and PB-190996.

APPENDIX TABLE A-1
APPRENTICESHIP STATISTICS, STATE OF NEW JERSEY
1952-1971

YEAR	REGISTERED & REINSTATED	CANCELLED & SUSPENDED	COMPLETED	ACTIVE END OF YEAR
1952	1192	419	642	3845
1953	1314	485	694	3780
1954	1103	391	713	3616
1955	1191	478	611	3814
1956	1360	338	789	4336
1957	1540	266	625	4737
1958	1258	378	883	4771
1959	1175	390	875	4282
1960	1185	477	1194	4177
1961	1288	424	765	4254
1962	n/a	n/a	n/a	4519
1963	1406	496	551	4931
1964	1435	429	419	5529
1965	1200	329	421	6200
1966	1664	399	493	6828
1967	1758	700	489	8876
1968	1619	886	616	7258
1969	2840	1407	1280	7410
1970	2534	988	945	8016
1971	2503	1071	1163	7341

SOURCE: Bureau of Apprenticeship and Training, New Jersey office.

APPENDIX TABLE A-2
APPRENTICESHIP STATISTICS, NEW JERSEY, 1952-1971

YEAR	REGISTERED	CANCELLED	COMPLETED	ENROLLED
1952	n.a.	n.a.	321	6035
1953	n.a.	n.a.	221	3935
1954	n.a.	n.a.	219	3935
1955	n.a.	n.a.	316	3868
1956	n.a.	n.a.	252	4170
1957	622	n.a.	416	4056
1958	638	n.a.	692	4171
1959	487	n.a.	400	3641
1960	629	n.a.	372	3523
1961	749	n.a.	225	4170
1962	1013	n.a.	411	3646
1963	557	n.a.	279	3876
1964	876	n.a.	403	4068
1965	1263	n.a.	276	4569
1966	1546	n.a.	386	5204
1967	1668	n.a.	352	6111
1968	2467	n.a.	502	6939
1969	2022	n.a.	460	6768
1970	2545	n.a.	610	6988

SOURCE: New Jersey State Department of Education, Division of Vocational Education.

APPENDIX TABLE A-3
APPRENTICESHIP STATISTICS, CALIFORNIA, 1952-1971

YEAR	REGISTRATION	CANCELLATIONS	COMPLETIONS	ACTIVE END OF YEAR
1952	7,492	6,987	4,725	18,075
1953	9,876	5,269	4,617	18,297
1954	7,667	5,645	3,658	16,852
1955	9,489	4,824	3,483	18,028
1956	11,274	5,638	3,553	20,111
1957	10,041	6,660	3,827	19,660
1958	7,524	5,193	3,953	18,085
1959	10,334	4,798	4,017	19,604
1960	10,446	5,317	3,783	20,950
1961	8,461	5,437	3,845	20,129
1962	8,658	4,800	3,992	19,995
1963	11,139	4,539	4,470	22,125
1964	12,079	5,469	4,512	24,223
1965	9,863	6,105	4,301	23,680
1966	9,318	5,867	4,492	22,639
1967	7,303	5,119	4,545	20,278
1968	9,243	4,105	4,806	20,610
1969	12,726	5,826	4,223	23,287
1970	15,868	7,195	4,162	27,798

SOURCE: California Department of Industrial Relations, Division of Apprenticeship Standards.

APPENDIX TABLE A-4
LIST OF STATES RANKED BY APPRENTICESHIP TRAINING RATE*

STATE	APPRENTICESHIP TRAINING RATE
1. District of Columbia	6.160
2. Nevada	5.260
3. Hawaii	4.680
4. New Mexico	3.360
5. Alaska	3.360
6. North Dakota	3.240
7. Montana	2.780
8. Utah	2.480
9. Wyoming	1.960
10. Arizona	1.860
11. Vermont	1.860
12. South Dakota	1.820
13. Minnesota	1.780
14. Louisiana	1.640
15. Florida	1.620
16. Oklahoma	1.600
17. Washington	1.580
18. Delaware	1.500
19. California	1.440
20. Michigan	1.440
21. Colorado	1.440
22. Wisconsin	1.380
23. Oregon	1.380
24. Connecticut	1.340
25. Idaho	1.300
26. Rhode Island	1.220
27. Virginia	1.180
28. Ohio	1.100
29. New York	1.060
30. Kentucky	1.060
31. Illinois	1.040
32. Texas	1.000
33. Tennessee	1.000
34. Iowa	.9800
35. Nebraska	.9800
36. Missouri	.9600
37. Massachusetts	.9400
38. Kansas	.9400
39. Maine	.9400
40. Indiana	.9200
41. West Virginia	.8600
42. Maryland	.8400
43. North Carolina	.8200
44. New Jersey	.8200
45. Georgia	.7800
46. Pennsylvania	.7000
47. Alabama	.6600
48. Arkansas	.6400
49. Mississippi	.6200
50. New Hampshire	.4800
51. South Carolina	.4000

* = Number of apprentices in training at the end of the year, as a percentage of the sum of annual employment in construction and manufacturing, the two industries which generate most apprenticeships.

APPENDIX TABLE A-5
LIST OF STATES AND TERRITORIES ACCORDING TO WHETHER THEY ARE STATE APPRENTICESHIP COUNCIL STATES OR BAT STATES

SAC STATES	BAT STATES
1. Arizona	1. Alabama
2. California	2. Alaska
3. Colorado	3. Arkansas
4. Connecticut	4. Georgia
5. District of Columbia	5. Idaho
6. Delaware	6. Illinois
7. Florida	7. Indiana
8. Hawaii	8. Iowa
9. Kansas	9. Michigan
10. Kentucky	10. Mississippi
11. Louisiana	11. Missouri
12. Maine	12. Nebraska
13. Maryland	13. New Jersey*
14. Massachusetts	14. North Dakota
15. Minnesota	15. Oklahoma
16. Montana	16. South Carolina
17. Nevada	17. South Dakota
18. New Hampshire	18. Tennessee
19. New Mexico	19. Texas
20. New York	20. West Virginia
21. North Carolina	21. Wyoming
22. Ohio	
23. Oregon	
24. Pennsylvania	
25. Rhode Island	
26. Utah	
27. Vermont	
28. Virginia	
29. Washington	
30. Wisconsin	
31. Puerto Rico	
32. Virgin Islands	

*Listed under BAT STATES because of active role of N.J. BAT Office. Technically, N.J. is neither a BAT or SAC State.

APPENDIX TABLE A-6
MEANS, STANDARD DEVIATIONS AND τ COEFFICIENTS OF SAC AND BAT STATES

Group	Variable 1		Variable 2		Variable 3		Variable 4		Variable 5	
	Apprenticeship		Apprenticeship Training Rate		Reigstrations		Completions		Cancellations	
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
BAT States	4140 ± 1078 N = 21		1.26 ± .1712 N = 21		.474±.008632 N = 21		.175±.008632 N = 21		.233±.01967 N = 21	
SAC States	5270±1189 N = 28		1.84±.2659 N = 28		.434±.01830 N = 28		.150±.007234 N = 28		.199±.01454 N = 28	

	τ - Value	df	σ^2	P
1.	.761	47	.579	<.50
2.	1.87	47	3.50	<.10
3.	1.63	47	2.66	<.25
4.	2.45	47	6.00	<.025
5.	1.47	47	2.10	<.25

APPENDIX TABLE A-7
NUMBER OF APPRENTICES, RANKED BY STATE
(FIVE YEAR AVERAGE, 1967-1971)

STATE	NUMBER
1. California	25,200
2. New York	21,300
3. Michigan	17,900
4. Ohio	16,800
5. Illinois	15,800
6. Pennsylvania	11,600
7. Texas	9,010
8. Wisconsin	7,910
9. New Jersey	7,620
10. Florida	7,460
11. Indiana	7,080
12. Massachusetts	6,810
13. Connecticut	6,710
14. Minnesota	6,260
15. North Carolina	6,210
16. Virginia	5,420
17. Washington	4,920
18. Tennessee	4,840
19. Missouri	4,750
20. Georgia	3,970
21. Louisiana	3,750
22. Kentucky	2,970
23. Maryland	2,790
24. Oregon	2,780
25. Oklahoma	2,530
26. Iowa	2,470
27. District of Columbia	3,340
28. Alabama	2,250
29. Arizona	2,080
30. Colorado	2,060
31. Hawaii	2,050
32. Rhode Island	1,680
33. Utah	1,620
34. South Carolina	1,530
35. Kansas	1,430
36. West Virginia	1,340
37. Delaware	1,260
38. Arkansas	1,230
39. Mississippi	1,230
40. Maine	1,160
41. Nebraska	1,070
42. New Mexico	993
43. Vermont	946
44. Montana	927
45. Nevada	901
46. Idaho	603
47. North Dakota	594
48. New Hampshire	491
49. Alaska	433
50. South Dakota	409
51. Wyoming	295

APPENDIX TABLE A-8
OCCUPATIONAL CLASSIFICATIONS FROM 1960 CENSUS

OCCUPATION	NEW JERSEY		UNITED STATES	
	1950	1960	1950	1960
CONSTRUCTION CRAFTSMEN	58,774	63,706	1,458,836	1,600,297
Brickmasons	8,891	9,349	165,981	185,909
Cement	436	621	29,561	40,767
Electricians	11,923	13,878	311,251	337,147
Excavating	1,804	4,145	105,422	198,802
Painters	14,926	13,771	391,841	370,660
Paperhangers	732	439	20,936	10,181
Plasterers	1,217	1,090	60,424	46,169
Plumbers	13,696	14,766	279,472	304,459
Roofers	2,273	2,438	44,479	47,980
Structural Metal	2,876	3,209	49,469	58,223
METAL CRAFTSMEN	21,976	22,512	572,810	574,591
Blacksmiths	793	328	43,526	20,030
Boilermakers	1,283	1,250	35,644	23,754
Heat Treaters	633	674	17,751	19,568
Millwrights	1,806	2,241	59,958	64,348
Molders	2,054	1,389	60,563	48,929
Pattern Makers	1,435	1,640	35,990	38,939
Rollers	525	570	30,361	29,665
Sheet Metal	4,907	5,445	123,232	135,315
Toolmaker	8,261	8,761	152,658	182,345
Forgemen	279	214	13,127	11,698

TABLE I-1
OCCUPATIONAL COMPOSITION OF EMPLOYMENT 1960-1980 (U.S.)

	1960	1970	1980
White Collar	43.3	48.3	50.8
Blue Collar	36.6	35.3	32.7
Service Workers	12.2	12.4	13.8
Farm Workers	7.9	4.0	2.7
TOTAL	100.0	100.0	100.0

(Percentage)

White collar occupations consist of professional, technical workers, managers, officials and proprietors, clerical and sales workers. Blue collar workers consist of craftsmen and foremen, operatives and non-farm laborers.
Service occupations include mechanics, repairmen, private household workers, protective services, food services, hospital attendants and nurses.

SOURCE: U.S. Manpower Administration, *Manpower Report of the President*, 1972, Tables A-11, p. 172 and E-10, p. 259.

TABLE I-2
CHANGES IN BLUE COLLAR OCCUPATIONS, 1960-1980 (U.S.)

*(thousands)

	1960		1970		1980	
	*No.	%	*No.	%	*No.	%
Craftsmen and Foremen	8,554	33.5	10,158	36.6	12,250	39.2
Operatives	11,950	49.7	13,909	50.0	15,400	49.5
Non-farm laborers	3,553	14.8	3,724	13.4	3,500	11.3
TOTAL	24,057	100.0	27,791	100.0	31,100	100.0

SOURCE: U.S. Manpower Administration, *Manpower Report of the President, 1972*, Table E-10, p. 259. The number of Craftsmen and Foremen in 1970 differs from the number reported by the U.S. Bureau of Census. Presumably, the Manpower Administration figures for 1970 will be revised based on the Census data.

TABLE I-3
OCCUPATIONAL COMPOSITION OF CRAFTSMEN (U.S.), 1970-1980

	1970		1980	
	Number	%	Number	%
1. CONSTRUCTION CRAFTSMEN	2,765	31.9	3,621	34.4
Carpenters	830	9.6	1,075	10.2
Brickmasons, Stone masons and Tile setters	200	2.3	260	2.5
Electricians	440	5.1	585	4.6
Plumbers & Pipefitters	350	4.0	470	4.5
Structural metalworkers	85	1.0	110	1.0
All Others	860	9.0	1,121	10.6
2. METALWORKING, CRAFTSMEN (except Mechanics)	1,215	14.0	1,427	13.5
Machinists	585	6.7	660	6.3
Sheet Metal workers	154	1.8	195	1.8
Toolmakers, Diemakers, Setters	195	2.3	250	2.4
All Others	281	3.2	322	3.0
3. MECHANICS AND REPAIRMEN	2,972	32.2	3,397	32.2
4. ALL OTHER CRAFTSMEN	1,898	26.9	2,095	19.9
5. TOTAL CRAFTSMEN	8,670	100.0	10,540	100.0

SOURCE: U.S. Bureau of Labor Statistics, *Tomorrow's Manpower Needs*, Vol. IV, Revised 1971, Appendix D, p. 19.

TABLE I-4
PERCENTAGE OF CRAFTSMEN ACQUIRING THEIR SKILLS THROUGH FORMAL TRAINING, BY OCCUPATION:

	Percent
Brickmasons, Stonemasons and Tile setters	45
Carpenters	31
Electricians	73
Excavating, Grading, Road Machinery Operators	11
Painter and Paperhanger	28
Plumber and Pipe Fitter	55
Tinsmith, Coppersmith, and Sheet metal Worker	71
Cranemen, Derrickmen, and Hoistmen	18

SOURCES: Cited by John T. Dunlop and D. Q. Mills, *Manpower Development and Utilization in the Contract Construction Trades*, May, 1972, n. 1, pp. 85-86. (Unpublished ms. prepared for the U.S. Department of Labor, Manpower Administration).

TABLE I-5
EMPLOYMENT OF BLACKS IN SELECTED CONSTRUCTION CRAFTS (U.S.) 1890-1970

	1970	1967	1950	1940	1930	1910	1890
Bricklayers	15.5	13.5	10.9	6.0	6.9	7.5	6.1
Carpenters	6.6	6.1	3.9	3.9	3.5	4.3	3.6
Cement finishers	30.3	37.7	26.2	15.2	15.8	13.0	10.3
Electricians	3.4	3.6	1.0	0.7	0.7	0.6	*
Painters	9.8	9.9	5.2	3.8	3.6	2.9	2.0
Plumbers and Pipefitters	3.9	3.2	3.3	2.2	2.0	1.7	1.1
Excavating, Grading, and Road machinery operators	5.0	6.9	*	*	*	*	*
Roofers	10.5	15.3	*	*	*	*	*
Structural metal workers	6.7	3.9	*	*	*	*	*
Tinsmiths, Coppersmiths, and Sheet metal workers	1.9	*	*	*	*	*	*
Laborers in construction	16.9	*	*	*	*	*	*

*NOTE: Data not available for these years.

SOURCES: 1950-1890: F. Ray Marshall, *The Negroes and Organized Labor* (New York: John Wiley and Sons, 1965), p. 157; 1967, 1970: Current Population Survey date; Cited in John T. Dunlop and D. Q. Mills, p. 55. (See footnote 45)

TABLE II-1
APPRENTICES IN TRAINING, END OF YEAR
UNITED STATES, NEW JERSEY AND CALIFORNIA, 1952-1972

YEAR	UNITED STATES BAT b	NEW JERSEY BAT b	CALIFORNIA SAC a	STATES AS A PERCENTAGE OF UNITED STATES N.J.	CALIF.
1952	158,500	3,800	18,000	2	11
1953	160,300	3,800	18,300	2	11
1954	158,700	3,600	16,900	2	11
1955	174,700	3,800	18,000	2	11
1956	188,100	4,300	20,100	2	11
1957	185,700	4,700	19,700	3	11
1958	177,700	4,800	18,100	3	10
1959	166,000	4,300	19,600	3	12
1960	166,100	4,200	21,000	3	13
1961	155,600	4,300	20,100	3	13
1962	158,600	4,500	20,000	3	13
1963	163,300	4,900	22,100	3	14
1964	170,500	5,500	24,200	3	14
1965	184,000	6,200	23,700	3	13
1966	207,500	6,800	22,600	3	11
1967	220,200	8,900	20,300	4	9
1968	238,000	7,300	20,600	3	9
1969	274,000	7,400	23,300	3	8
1970	279,000	8,000	27,800	3	10
1971	274,000	7,300	28,300	3	10

a = Year ending June 30
b = Calendar year

NOTE: Totals and flow figures through the year (registrations, completions, and cancellations) reported are not the same as those reported nationally by the U. S. Manpower Administration. See Appendix Tables A-1 and A-2 (New Jersey), and A-2 (California).

TABLE II-2
APPRENTICES IN TRAINING, END OF YEAR, UNITED STATES, NEW JERSEY, AND CALIFORNIA, 1952-71

(1963-65 = 100.0)

YEAR	UNITED STATES	NEW JERSEY (BAT)	CALIFORNIA
1952	91.8	69.1	77.7
1953	92.9	69.1	78.5
1954	91.9	65.5	72.5
1955	101.2	69.1	77.3
1956	63.9	78.2	86.3
1957	107.5	85.5	84.5
1958	102.9	87.2	77.7
1959	96.2	78.2	84.1
1960	93.3	76.4	90.1
1961	90.1	78.2	86.3
1962	92.1	81.8	85.8
1963	94.6	89.1	94.8
1964	98.8	100.0	103.9
1965	106.6	112.7	101.7
1966	120.2	123.6	97.0
1967	127.7	161.8	87.1
1968	137.6	132.7	88.4
1969	158.7	134.5	100.0
1970	162.0	145.4	119.3
1971	158.7	132.7	121.4

SOURCES and NOTES: See Table II-1

TABLE II-3
APPRENTICESHIP TRAINING RATE*
UNITED STATES, NEW JERSEY AND CALIFORNIA
SELECTED YEARS, 1952-1971

(percent)

YEAR	UNITED STATES	NEW JERSEY (BAT)	CALIFORNIA (SAC)
1952	.8%	.4%	1.5%
1955	.0	.4	1.3
1960	.8	.5	1.3
1965	.9	.7	1.4
1967	1.0	.9	1.2
1968	1.0	.7	1.2
1969	1.2	.7	1.4
1970	1.2	.8	1.6
1971	1.3	.8	1.8

* = Number of apprentices in training at the end of the year, as a percentage of the sum of annual employment in construction and manufacturing, the two industries which generate most apprenticeships.

SOURCE: Apprenticeship figures from Table II-1. Employment figures from U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings, State and Areas 1939-70,* Bull. 1370-8 (1971); and *Employment and Earnings,* Vol. 18. No. 11, May 1972.

TABLE II-4
APPRENTICE COMPLETION RATES*
UNITED STATES, NEW JERSEY, CALIFORNIA 1952-1969

(percent)

YEAR	UNITED STATES	NEW JERSEY (BAT)	CALIFORNIA (SAC)	STATE COMPLETION RATES RELATIVE TO U.S. NEW JERSEY	CALIFORNIA
1952	39.5%	51.3%	46.5%	1.8%	1.2%
1953	40.0	60.0	36.0	1.5	.9
1954	51.5	56.7	49.9	1.1	.9
1955	45.6	74.1	41.7	1.6	.9
1956	50.5	64.3	35.6	1.3	.7
1957	53.2	77.5	37.7	1.5	.7
1958	57.6	60.8	51.1	1.1	.9
1959	39.1	n.a.	38.6	n.a.	1.0
1960	48.1	46.5	52.8	.9	.9
1961	52.0	32.5	53.3	.6	1.0
1962	44.8	n.a.	49.7	n.a.	1.1
1963	46.3	35.1	39.7	.7	.8
1964	62.2	34.1	37.6	.5	.6
1965	54.4	51.3	48.7	.9	.9
1966	46.6	76.9	45.3	1.7	.9
1967	46.1	53.8	57.0	1.2	1.2
1968	37.9	71.8	42.5	1.9	1.1

*Percentage of those completing apprenticeship in any one year to those who registered or were reinstated four years earlier.

SOURCE: Appendix Table A-1, A-2 and A-3, for New Jersey and California. Figures for the United States are from the U.S. Manpower Administration.

TABLE II-5
PERCENTAGE OF ALL REGISTERED APPRENTICES IN NEW JERSEY RECEIVING RELATED INSTRUCTION FROM ALL SOURCES AND PROPORTION OF THESE RECEIVING SUCH INSTRUCTION IN PUBLIC INSTITUTIONS

YEAR	TOTAL	PERCENTAGE OF TOTAL IN PUBLIC INSTITUTIONS
1952	88.4	n.a.
1955	96.2	82.1
1960	98.1	86.7
1965	91.9	79.4
1966	94.8	85.8
1967	95.4	84.4
1968	97.5	92.1

SOURCE: New Jersey Division of Vocational Education (see footnote 29).

TABLE II-6
NEW JERSEY – NUMBER OF BUILDING TRADES' APPRENTICES
OCTOBER 1972

	TOTAL	WHITE	NEGRO	SPANISH-SPEAKING	OTHER	% NON-WHITE IN TRADE
Asbestos Worker	4	4	0	0	0	0.0
Blacksmith	6	4	1	1	0	33.3
Bricklayer-Mason	206	189	14	3	0	8.0
Cabinet Maker-Millman	23	22	1	0	0	4.0
Carpenter	814	753	48	11	2	7.0
Cement Finisher	25	21	4	0	0	16.0
Electrician	844	773	57	11	3	8.0
Glazier	18	16	2	0	0	11.0
Ironworker	232	165	60	5	2	28.0
Lather	9	8	1	0	0	11.1
Millwright	76	68	7	1	0	10.5
Painter	108	52	49	7	0	51.8
Plumber-Pipefitter	713	687	23	3	0	3.6
Plasterer	6	4	2	0	0	33.3
Rigger	5	2	3	0	0	60.0
Sheet Metal Worker	250	242	8	0	0	3.2
Sprinkler Fitter	67	63	3	1	0	6.0
Steamfitter	143	138	3	2	0	3.5
Tile Setter	2	1	1	0	0	50.0
TOTAL	3,551	3,212	287	45	7	10.5%

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SOURCE: U. S. Bureau of Apprenticeship and Training, New Jersey Office.

TABLE II-7
MINORITY ENROLLMENT IN APPRENTICESHIP IN UNITED STATES, NEW JERSEY, CALIFORNIA
1962-1972

NEW JERSEY

YEAR	BLACK	SPANISH	OTHER	TOTAL MINORITY	% OF TOTAL
1967	n.a.	n.a.	n.a.	n.a.	–
1968	394	96	5	495	6.7
1969	570	119	2	641	8.0
1970	534	118	5	657	8.9
1971	527	123	5	755	10.3
1972	621	136	11	768	10.5

CALIFORNIA

YEAR	BLACK	SPANISH	OTHER	TOTAL MINORITY	% OF TOTAL
1967	545	1,668	577	2,760	13.4
1968	864	1,951	576	3,391	15.3
1969	1,272	2,371	704	4,571	16.8
1970	1,598	3,102	734	5,434	18.8
1971	1,564	3,030	723	5,317a	18.9a
1972	n.a.	n.a.	n.a.	n.a.	n.a.

UNITED STATES (b)

YEAR	TOTAL MINORITY	% OF TOTAL
1967	n.a.	n.a.
1968	9,095	6.4
1969	13,605	7.7
1970	16,533	8.4
1971	18,977	9.8
1972	n.a.	n.a.

NOTE: a. 139 of this total did not report ethnic group. Of this number, 26 included in the minority total prorated on the ratio of all those reporting ethnic group to total apprentices. b. Figures are BAT (federal) apprentice transactions only: state transactions are excluded. Therefore, totals are less than those reported regularly by the U.S. Manpower Administration for the country.

SOURCES: New Jersey and U.S. from BAT in New Jersey. California from Division of Apprenticeship Standards, annual reports, *Survey of California Apprentices.*

TABLE II-8
CRAFTSMEN EMPLOYED IN NEW JERSEY, 1950-1970 AND PERCENTAGE CHANGE BETWEEN DECADES 1950-1960 and 1960-1970

CRAFT	YEAR			PERCENT CHANGE	
	1950	1960	1970	1950-1960	1960-1970
1. Construction Craftsmen (Except Carpenter s)	58,774	63,706	70,818	8.4	11.1
2. Carpenters	28,425	27,269	27,088	-4.1	- .7
3. Machinists	27,206	24,771	14,460	-9.0	-41.6
4. Metal Craftsmen and Machinists (Except Mechanics)	21,976	22,512	25,855	2.4	14.8
5. Mechanics and Repairmen	65,194	83,147	87,154	27.5	4.8
a. Except Auto	44,668	59,903	53,968	34.1	- 9.1
b. Auto Mechanics	70,526	23,244	33,186*	13.2	42.7
6. Others: Foremen, Craftsmen & Kindred Workers	109,356	126,002	166,432	15.2	32.1
a. Foremen	37,624	52,498	n.a.	39.5	n.a.
(1) Construction	1,713	2,951	n.a.	72.3	n.a.
(2) Metal Industries	3,071	4,884	n.a.	59.0	n.a.
(3) All Other	32,840	44,661	n.a.	36.0	n.a.
b. Craftsmen and Kindred Workers	71,732	73,506	n.a.	2.5	n.a.
7. Total Craftsmen, Foremen and Kindred Workers	310,931	347,407	391,807	11.7	12.8

*In 1970, includes body repairmen.

SOURCE: In 1950 and 1960, U.S. Bureau of Census, Characteristics of The Population, New Jersey, 1960, Vol. 32, Table 120, p. 480. 1970, U.S. Bureau of Census, General Social and Economic Characteristics, New Jersey, 1970, Vol. 32, Table 54, p. 235.

NOTES: See Appendix Table A-9 for Occupational Classifications and figures from 1960 Census for data shown in 1950 and 1960. For 1950 and 1960, the Labor Force Included Those 14 and Over; By 1970, The Definition Had Been Changed to Those 16 and Over.

TABLE II-9
CRAFTSMEN EMPLOYED, UNITED STATES, 1950-1970 AND PERCENTAGE CHANGE BETWEEN DECADES 1950-1960 and 1960-1970

CRAFT	YEAR			PERCENT CHANGE	
	1950	1960	1970	1950-1960	1960-1970
1. Construction Craftsmen (Except Carpenters)	1,458,836	1,600,297	1,939,616	9.7	12.1
2. Carpenters	918,753	818,835	824,341	-10.9	2.9
3. Machinists	514,696	498,688	378,653	- 3.1	-24.1
4. Metal Craftsmen and Machinists (Except Mechanics)	572,810	574,591	719,968	.3	25.3
5. Mechanics and Repairmen	1,729,834	1,729,834	2,223,358	28.5	9.9
a. Except Auto	1,075,484	1,541,255	1,531,502	43.3	- .6
b. Auto Mechanics	654,350	682,103	912,410*	4.2	33.8
6. Others: Foremen, Craftsmen and Kindred Workers	2,625,705	3,025,523	4,283,520	15.2	41.6
a. Foremen	845,478	1,175,112	n.a.	39.0	n.a.
(1) Construction	59,044	96,477	n.a.	63.4	n.a.
(2) Metal Industries	83,341	129,068	n.a.	54.9	n.a.
(3) All Others	703,093	949,567	n.a.	35.1	n.a.
b. Craftsmen and Kindred Workers	1,780,227	1,850,411	n.a.	3.9	n.a.
7. Total Craftsmen, Foremen and Kindred Workers	7,820,634	8,741,292	10,608,010	11.8	21.4

*In 1970, includes body repairmen.

SOURCES: 1950 and 1960, U.S. Bureau of the Census, *Characteristics of the Population 1960*, Vol. 1. Detailed Occupation of the Employed, By Sex, For the United States: 1960 and 1950, Table 202, p. 530. 1970, U.S. Bureau of the Census, *General Social and Economic Characteristics, U.S. Summary, 1970* Occupation of Employed Persons by Race, for Urban and Rural Residence: 1970, Table 91, p. 392.

TABLE II-10
PROJECTED EMPLOYMENT BY INDUSTRY SECTOR IN NEW JERSEY, 1970, 1975, 1980

	1970	1975	1980	PERCENT CHANGE 1970-80
All Employees, Non-Agricultural Payrolls	2,608,900	2,856,400	3,144,800	20.5
GOODS SECTOR	**1,166,500**	**1,251,200**	**1,302,100**	**11.6**
Mining	3,200	3,300	3,300	3.1
Construction	119,200	143,100	156,900	31.6
Manufacturing	861,800	914,900	940,500	6.7
Transportation, Communication and Public Utilities	182,300	189,900	201,400	10.5
SERVICE SECTOR	**1,143,500**	**1,605,200**	**1,842,700**	**61.1**
Trade	538,400	579,900	648,300	20.4
Finance, Insurance, Real Estate	117,700	122,200	134,700	14.4
Services	411,700	484,100	585 ,700	42.3
Government	374,700	419,000	474,000	26.5

NOTE: All projected data are preliminary. Due to rounding, detail may not add to total in 1970.

SOURCE: 1970, U.S. Bureau of Labor Statistics, *Employment and Earnings*, Vol. 18, No. 11, May 1972, p. 130; 1975 and 1989 from N.J. Department of Labor and Industry.

TABLE II-11
DISTRIBUTION OF ACTIVE APPRENTICES IN THE STATE OF NEW JERSEY, BY OCCUPATION, RACE AND SEX, AS OF FEBRUARY 1972

Occupation	Total	Minority	Negro	Spanish Surname	American Indian	Female
Architectural Draftsman	[illegible]	5	5	4		
Asbestos Worker	6					
Auto Body Builder	2					
Auto Body Repairman	61		12			
Auto Machinist	14					
Auto Mechanic	167	23	19	4		
Baker	1	2	1	1		
Barber	1					
Blacksmith	6	2	1	[illegible]		
Boat Builder	1					
Boilermaker	3					
Bookbinder	22	13	5	8		
Bricklayer	243	5	5			
Business Machine Mechanic	46	4	4			
Butcher	[illegible]					
Cabinetmaker	29	1	1			
Cameraman – Lithographer	6	1	1			
Candy Maker	0					
Carpenter	945	73	58	15		
Cement Finisher	25	4	4			
Chemical Processor	7					
Compositor	10					3
Construction Equipment Mechanic	8					
Cook – Chef	106	49	43	44	2	7
Coppersmith	0					
Dental Technician	48	19	18	1		2
Die Maker	5	1	1			
Die Setter	0					
Diesel Engine Mechanic	10					
Drafting Technician	0					
Draftsman	57	3	3			
Dry Cleaner	31	31	31			
Electrician	1158	77	63	11	3	
Electrician, Industrial	113	3	2	1		
Electric Motor Repairman	4					
Electrician, Sign	44	4	1	3		
Electronic Technician	12					
Electroplater	4					
Engine Repairman	0					
Engraver	3					
Envelope Machine Adjuster	0					
Fire Alarm Mechanic	0					
Floor Coverer	88	11	9	2		
Gage Maker	0					

Occupation	Total					*
	All Apprentices	Minority	Negro	Spanish Surname	American Indian	Female
Glassware Engraver	00					
Glasier	23	2	2			
Gunsmith	2					
Heat Treater	1					
Inside Machinist	0					
Instrument Maker	31	2	2			
Instrument Repairman	43					
Insulator	0					
Ironworker	267	31	22	7	2	0
Jeweler	8	1	1			
Laboratory Technician	47	7	7			14
Lather	9	1	1			
Leadburner	4					
Linotype Machinist	4					
Lithographer	26	6	3	3		9
Locksmith	1					
Machine Tool Setter	4					
Machinist	464	44	32	12		
Machinist, Refrigeration	0					
Maintenance Electrician	16	7	7			
Maintenance Machinist	33	1	1			
Maintenance Mechanic	29	1		1		
Maintenance Pkg. Machine Mechanic	0					
Mason	75	6	6			
Meat Cutter	11	9	8	1		
Metal Fabricator	0					
Metal Spinner	1					
Millman	0					
Millwright	76	8	7	1		
Model Maker	18	2	2			
Mold Maker	3					
Molder	6	5	3	2		
Offset Pressman	20	4	3	1		
Optical Technician	20	1	1			
Organ Builder	0					
Outside Machinist	0					
Painter	111	60	52	8		
Patternmaker	14					
Photographer	4					
Photoengraver	4					
Photo Marking Technician	2	1	1			2
Pipefitter	162	6	5	1		
Pipefitter, Industrial	43	5	3	2		
Plasterer	4	2	2			
Plastic Fabricator	0					
Platinumsmith	0					
Plumber	779	26	22	4		
Porcelain Die Maker	0					

Occupation	Total					
	All Apprentices	Minority	Negro	Spanish Surname	American Indian	* Female
Pressman	74	13	2	11		
Printer	88	5	5			1
Pump and Tank Mechanic	0					
Radio and T.V. Service Repairman	19	1	1			
Refrigeration Engineer	0					
Refrigeration and A.C. Mechanic	30	8	8			
Rigger	5	4	1	3		
Roofer	5	3	3			
Scientific Glassblower	0					
Sheet Metal Worker	447	12	11	1		1
Sheeter	2	1		1		
Shoe Repairman	0					
Shop Ironworker	0					
Sign Painter	4	2	2			2
Signal Systems Electrician	0					
Sign Sheet Metal Worker	11	2	1	1		
Silk Screen Print er	0					
Silversmith	1					
Sprinkler Fitter	81	3	2	1		
Stationary Engineer	165	29	23	6		
Steamfitter	92	6	4	2		
Stereotyper	2					
Stone Setter	4					
Stripper, Opaquer	0					
Tailor	0					
Tile Setter	2	1	1			
Tinsmith	0					
Toolmaker	0					
Tool Designer	0					
Tool and Die Maker	626	44	33	11		
Truck Mechanic	50					
Truck and Trailer Body Builder	1					
Typographer	10					
Upholsterer	7	3	1	2		
Weaver	0					
Welder	2	1	1			
	7373	719	579	133	7	42

*Female statistics are included in both the aggregate and minority totals. They include both white and minority individuals.

SOURCE: Bureau of Apprenticeship and Training, New Jersey Office

TABLE II-12
NUMBER OF REGISTERED APPRENTICES, BY COUNTY AND THE ESTIMATED TIME ALLOCATED TO APPRENTICE COORDINATION BY COUNTY COORDINATORS IN THOSE COUNTIES, FALL OF 1971.

COUNTY	NO. APPRENTICES	EST. TIME
Atlantic County	151	5%
Bergen County	555	80
Burlington County	289 *	50
Camden County	438	100
Cape May County	21	5
Cumberland County	264	90
Essex County	1,568 *	100
Gloucester County	74 *	0
Hudson County	401 *	30
Hunterdon County	9	5
Mercer County	346	100
Middlesex County	962	100
Monmouth County	99 *	5
Morris County	223	5
Ocean County	121	100
Passaic County	241	100
Salem County	143	60
Somerset County	161	70
Sussex County	84	70
Union County	260	70
Elizabeth City	426	100
Warren County	68	5
TOTAL	6,904	

TOTAL AVERAGE FOR THE STATE = 58%

*1970 Statistics. Total on this Table does not match either 1970 or 1971 annual statistics.

SOURCE: State of New Jersey, Department of Education, Division of Vocational Education.

APPENDIX II

MODIFICATION IN "QUALITY OF LIFE" VARIABLES

	PRE-APPRENTICESHIP	POST-APPRENTICESHIP
Socio-economic status*	.018**	.069***
Credentials:		
Union Membership	0	62.9%****
Journeyman Status	0	83.8%†
Year-round employment in their trade	0	82.3††
Aspirations for socio-economic status while in high school	.036†††	Compared to achieved S.E.S. – .069
Self-Rating (as *student* compared to *worker*)	.045*†	.054*††

*Determined by occupation index of Warner, which incorporates income and education variables, applied to apprenticeship data re-earnings.

**Of the respondents, N = 1526

***Of the respondents who completed or left the program, N = 702.

****Of the respondents, N = 1590.

†Of the respondents who completed or left the program, N–735.

††Of the respondents who completed or left the program, N–616.

†††Using Warner index, applied to N–1539.

*†Of the respondents, N–1582.

*††Of the respondents, N–1561.

Data regarding occupations, both before and after apprenticeship training, were categorized according to the occupation index used by Alba Edwards "Socio-Economic Grouping of Occupations", *Research Design and Social Measurements,* Delbert Miller, which incorporates income and education variables. Respondents were assigned socio-economic status (SES) points in ascending ratio commensurate with their positions:

CLASS	POSITION	SES POINTS
Lower-lower	Unskilled labor	1
Upper-lower	Operative	2
Lower-middle	Craftsmen	3
Upper-middle	Clerical/Sales	4
Lower-upper	Owner/Manager	5
Upper-upper	Professional/Technical	6

The percentage of respondents falling into each SES level was then multiplied by the SES points to yield a total SES figure. An average was then computed for pre-apprenticeship SES. The same procedure was followed for post-apprenticeship averaging. An effectivity factor was applied, proportionate to the number of responses, to the questions on pre and post apprenticeship training occupations, in order to keep constant the size of the sample.

The average socio-economic status of the total sample pre-apprenticeship, arrived at as above, was .018. The average of the socio-economic status of those who completed or left the program was .069, almost a four-fold increase. This is similar to the earnings increase described above, in which two thirds of the graduates now earned $5 per hour and above, compared to most having earned under $3. per hour before entry. Even when comparing aspirations for socio-economic status while in high school, the average was .036, compared to the average of .069 actually achieved by the sample.

Another measure of improvement in quality of life is that of journeymen status, which all those who completed the program achieved. Union membership also represents a valued credential in society and 69% of those who graduated, attained union membership.

Year-round employment in their trade resulted for 84% of the graduates, with the remainder working some part of the year in their trade. The total sample's self-evaluation as students before entering the program was an average of .045, compared to an average self-evaluation as workers after apprenticeship training of .054.

A final measure indicating improved quality of life is the self-rating as a worker now, in which 93% of the sample rated themselves "good" or "excellent". as students before entering an apprenticeship program. While the change in role from student to worker may account for the improvement in self image, practically it may be assumed to be the result of apprenticeship training.

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